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THE
CRYPTOGAMIC PLANTS
OF THE
UNITED STATES.

Natura maxime miranda in minimis.—LINNÆUS.

"Il lui faut un Ouvrage qui recueille toutes ces richesses scientifiques disséminées dans tous ces mémoires, et les coordonne de façon à faire ressortir tout ce qui est gailliant. Cet Ouvrage n'existant pas, je formai dès lors le projet de le composer."

THE paper which we have the honor to present, is supplementary to the "Report on the Medical Botany of the State of South Carolina," prepared by your Committee, and published in the second volume of the Transactions of the American Medical Association. It endeavors to complete that sketch of the medicinal properties of the Phanogamous Plants, by extending the inquiry to the Cryptogamous.

It has been undertaken as a contribution as well to the materia medica of the State as to the history of her resources. Hence, we have not hesitated to embrace in it all available information respecting productions which do not contain properties strictly medicinal, but which subserve any useful purpose. All facts which throw light upon the poisonous properties of plants may be regarded as of service, if only approximately; the possession of these often leading to their application as curative agents, and the history of our therapeia showing, indeed, that from this class have been drawn some of its largest and most important addi-

* It should be stated, that this Report was completed and in the hands of the Association two years since. Its appearance was delayed in order to enable the writer, who was absent in Europe, to make alterations or additions, and to revise its publication.

tions. In a strictly toxicological point of view, they possess, of course, their own inherent value.

On account of the rapidity with which discoveries are being made in this department of science, both in this country and in Europe, and the necessary changes which befall its nomenclature, proverbially fickle, we have included in it also whatever is known respecting those growing in the United States at large, as well as of some which may not be yet ascertained to be natives. The easy-diffusion of the minute spores of these interesting plants, renders this extension of the geographical area within which we are limited the more necessary. By this means, when new genera and species shall be discovered in any particular locality, we may more successfully refer to the following for information respecting their medicinal, toxicological, or dietetic properties.

We have the privilege of whatever of pleasure, of enthusiasm, and of ardent novelty gives to the pioneer in new and unexplored regions, this being a department of inquiry which has had few or absolutely no laborers in this country. The present Report, therefore, requires the embodying of a comparatively large amount of material, in order that our knowledge of the subject may be brought up to the present day; and that future inquirers, being placed in possession of what has been already accomplished, may proceed directly to more experimental researches.

The difficulty of the task is increased by the partial obscurity which invests all examinations among the Flowerless Plants. Notwithstanding some of the best minds in Europe and in this country are ranked among their investigators, and their study attracted, at the beginning of this century, so much attention that the Germans were derided for the "Cryptomania" which prevailed among them, yet the multiplication of synonyms involves them in some confusion, and demands the keenest scrutiny and exactness.

In order to secure as much accuracy as the nature of the subject permits, we have spared no pains to make careful comparisons from the most recent and best-approved works. We have selected, as a basis for the paper, an authority which none will be inclined to question, viz. The "Cryptogamia of England," by Sir William Jackson Hooker; the Rev. M. A. Berkley, equally well known, also being the author of the portion embracing the Fungi. The classification and arrangement, however, is the Natural one, adopting the views of Prof. Lindley.

The ability to prepare, and the value of, treatises devoted to the medicinal properties of productions which contribute so materially to the fine arts, and to the resources of the physician, must keep pace, *pari passu*, with the results of the examination by living investigators into their natural habits. May we not claim, too, that the existence of the former gives additional interest to the latter also?

Had we not the "Musci Alleghaniensis" of Sullivant, the "Lichenes Am. Septent. Exsiccati," of Tuckerman, and the "Fungi Caroliniani Exsiccati," just published by H. W. Ravenel, of St. John's, Berkley, S. C., we should be unable to refer to localities, or, indeed, have any idea of what existed around us. To the able and experienced mycologist last mentioned, we are indebted for many favors,—among others, for furnishing from Schweinitz's "Synopsis" the localities of species growing in North Carolina; from Tuckerman and Sullivant what are found in the Northern and Western States; designating, also,—what he has himself seen and studied in the State of South Carolina by a mark of exclamation (!). We may express the confidence which may be reposed in the identity of species corresponding to those in the possession of Mr. Ravenel, as we know that, in addition to his own excellent observation, they have passed under the eye of the best naturalists in Europe.

We have also recently received the "Nereis Boreali-Americana:" or Contributions to the History of the Marine Algae of North America. By W. H. Harvey, M. D. (Part 1st embracing the Melanospermeæ), being one of the Smithsonian Contributions to Knowledge. This also has enabled us to obtain localities for individuals of this class.

We beg leave to refer to the following authorities, to enable us to consult some of which we were forced to make direct importations from abroad:—

The English Flora of Sir James Ed. Smith. Class XXIV. Cryptogamia. By William Jackson Hooker, LL. D., &c. &c., Regius Prof. Botany in the Univ. of Glasgow. (The Fungi, by Rev. M. J. Berkeley, F. L. S., &c.) London, 1836.

A Treatise on Poisons in Relation to Med. Jurisprudence, Phys., and the Pract. Physic. By Robert Christison, M. D., F. R. S. E., Prof. Mat. Med. Univ. Edinb., 1845.

An Introd. to the Nat. Syst. Botany; or a Systematic View of the Organization, Natural Affinities, and Geograph. Distrib. of the whole Vegetable Kingdom. Together with the uses of the most important species in medicine, the arts, and rural and domestic economy. By Jno. Lindley, F. R. S., &c. First Am. Ed. With an

Appendix by Jno. Torrey, M. D., Prof. Chem. and Bot. in Coll. Phys. and Surg., Univ. New York. Newark, N. J., 1831.

Principles of Scientific Botany; or, Botany as an Inductive Science. By Dr. J. M. Schleiden, Extraord. Prof. Botany, Univ. Jena. Trans. by Ed. Lankester, M. D., F. R. S., Lect. on Mat. Med. and Bot. at the St. Geo. Sch. Med., Lond. London, 1849. (With a paper on the use of the microscope.)

Traité des Poisons, tirés des Règnes Minéral, Végétal, et Animal; ou, Toxicologie Générale, &c. Par M. Orfila, Prof. de Chim., &c. Troisième Edition. Paris, 1836. 2 vols.

Traité de Méd. Légale et d'Hygiène Publique; ou, des Polices de Santé. Par F. E. Fodéré, Docteur en Méd. Paris, 1815.

Botanique Cryptogamique; ou, Histoire des Familles Naturelles des Plantes Inférieures. Par J. Payer, Avocat, Docteur en Sciences, Maître en Pharmacie, Agrégé de la Faculté des Sciences de Paris, Professeur à l'Ecole Normale, et Représentant du peuple. Avec 1105 Figures, représentant les principaux caractères des genres. Paris, Victor Masson, 17, Place de l'Ecole-de-Médecine, 1850.

The Elements of Materia Medica and Therapeutics. By Jonathan Pereira, M. D., F. R. S. and L. S., Licentiate of the Royal College of Physicians in London, Fellow of the Roy. Med. and Chirurg. Society, Lect. on Mat. Med. at Lond. Hosp., &c. With notes by Jos. Carson, M. D. Phila., 1843.

Diet. Univ. de Mat. Médicale. Par Merat et De Lens. En 6 tomes. Paris, 1833. Supplementary vol. 1846.

Diet. des Sciences Médicales. Paris, 1812.

Diet. d'Histoire Naturelle.

Linneus' Vegetable Materia Medica. Translated by Whitlaw.

Prodromus' Syst. Nat. Regni Vegetabilis.

Dillenius' Hortus Ethamensis.

Woodville's Med. Botany. 4 vols. London.

Flora Londinensis. Curtis & Hooker.

U. States Dispensatory. By Wood & Bache. 6th ed.

Eléments d'Histoire Naturelle Médicale, contenant des notions générales sur l'histoire naturelle, la description, l'histoire, et les propriétés de tous les aliments, médicaments, ou poisons tirés des végétaux et des animaux. Ouvrage orné de 800 gravures intercalés dans la texte, par Achille Richard, Docteur en Médecin, Prof. à la Facult. de Méd. de Paris, Memb. de l'Acad. des Sc., &c. 4th edition. 2d part Botanique. Paris, 1849.

Josephi Gaertneri, M. D., Acad. Sc. Imp. de Fructibus et Seminibus Plantarum, volumen alterum. Continens seminum centurias quinque posteriores, cum Tabulis Aëreis. C. L. Fabring, 1791.

Pursh. Flora Am. Septentrionalis. London, 1816.

Account, by James McBride, M. D., of St. Stephens, S. C., of *Lycoperdon solidum* (cervinum of Walter). Indian bread, communicated to 12th vol. Transactions of Linnæan Society.

The Botanical Magazine. By Wm. Curtis, author of the Flora Londinensis. London, 1793. In 54 vols. The two last by Sir William Jackson Hooker.

Physiologie Végétale; ou, Exposition des forces et des fonctions vitales des Végétaux. Par Aug. de Candolle. Paris, 1832.

English Botany; or, Colored Figures of Plants, with their essential characters, &c. By James Ed. Smith, M. D., F. R. S., &c. Figures by James Sowerby. 36 vols.

Plante Rariores Hiberniâ Inventæ. With concise remarks on the properties and

uses of many of them. By Walter Wade, M. D., M. L. S., Prof. of Botany. Dublin, 1804.

Fungi Caroliniani Exsiccati. Fungi of Carolina, illustrated by natural specimens of the species. By H. W. Ravenel, Cor. Memb. of Acad. Nat. Sc. of Phila. Fasc. I. II. John Russell, Charleston, S. C. 1852-3.

Des Végétaux qui croissent sur l'Homme et sur les Animaux Vivants, par M. Ch. Robin, Docteur en Médecin et en Sciences Naturelles, ancien interne des Hôpitaux de Paris, &c., &c. Accompagné de trois planches gravées. Paris, 1847. (See, also, enlarged edition, Paris, 1853.)

Histoire des Champignons Comestibles et Vénéneux, où l'on expose leurs caractères distinctifs, leurs propriétés alimentaires et économiques, leurs effets nuisible et les moyens de s'en garantir ou d'y remédier. Par J. Roques, Auteur de la Phyt. Médicale et du Nouveau Traité des Pl. usuelles. 2d edition. Avec un atlas, plantes coloriées. Paris, 1841.

CLASS II. CELLULARES.

TRIBE I. FILICOIDEÆ.

ORDER 1st. Equisitaceæ.

FLOWERLESS plants, with sporules surrounded by elastic clavate filaments, and inclosed in thecæ arising from the scales of terminal cones. Vernation straight.

These very remarkable plants, known by the vulgar name of Horse-tails, seem to have no very decided affinity for any existing tribes.

From fossil remains, it seems clear that gigantic growths of them formed a considerable part of the original vegetation of the globe. They have not yet been seen in New Holland. Though said to be slightly astringent and stimulating, and recommended as diuretics and emmenagogues, they are not much employed in medicine. In economical purposes they are found highly useful, for polishing furniture and household utensils; a property which is due to a great quantity of siliceous earth below their cuticle (Lindley). According to the observations of Dr. John, of Berlin, they contain full thirteen per cent. of siliceous earth (Ed. P. J. 2, 394). The ashes have been found by chemists to contain half their weight of silica (Jameson's Jour., Jan. 1830, 102). The quantity is so great in *Equisetum hyemale*, that Mr. Sivright succeeded in removing the vegetable matter and retaining the form (Grev., Fl. Edin. 214). In subjecting a portion of the cuticle of

the plant to the analysis of polarized light under a high magnifying power, Dr. Brewster detected a beautiful arrangement of the silicious particles, which are distributed in two lines parallel to the axis of the stem, and extending over the whole surface. Each particle has a regular axis of double refraction. He concludes that the crystalline portions of silex and other earths, which are found in vegetable tissues, are not foreign substances of accidental occurrence, but are integral parts of the plant itself, and probably perform some important function in the process of vegetable life (Grey, Fl. Edin., 214). Lindl., Nat. Syst. Bot. and Outlines of First Principles, 309.

Equisetum hyemale, L. Lenhossek recommends this and the *E. limosum*, L., as diuretics. A decoction of the dried plant is employed, the fresh being too active. Two to three drachms are added to a pint of water, of which the dose is three to six ounces every three hours (Archiv. Gén. de Méd. xvi, 455). In atonic dropsy they are considered too active, causing hematuria. They might be given in the form of powder. Some consider them emmenagogues. They have also been administered to promote the cicatrization of the ulcers in phthisis. Hoffman prescribed them in malignant fevers. Mathiöle (Comm. 386) states that they constipate; though portions of the plant are eaten in Rome and in Tuscany. One species may be substituted for another (De Cand. Essai, 511). The stems of the *E. hyemale* are employed in polishing wood, cleaning vessels, &c. M. Diebold found it to be composed of chlorophylle, wax, yellow extractive matter, gallate of lime, malic acid, oxide of iron, salts, &c. MM. Pietet and John found silica in large proportion. Bull. des Sc. Méd. Fér. xvi, 459. Merat & De Lens' Dict. de Mat. Méd. 111, 127.

Equisetum limosum. The diuretic power of this plant, also, according to the comparatively recent investigations of Lenhossek, in Vienna, are well marked, to a sufficient degree to produce hematuria (Edin. Med. and Surg. Jour. 1827; Archiv. Gén. de Méd. 16, 456; Jour. de Chim. Méd. iii, 554; M. Richard, Elem. d'Hist. Nat. Méd. 11, 55). According to the observer alluded to, the plant does not irritate the digestive canal, nor derange the circulation. They are advised in cases of serous accumulations induced by atony. An acid is obtained called equisetie, analogous if not similar to *maleic*, from the distillation of malic acid.

Equisetum variegatum. The diuretic power of the *E. hyemale* is shared, though to a less degree, by this, the *E. ramosum* and *E. palustre*. Richard.

ORDER. II. LYCOPODIACEÆ.

Lycopodium selago, *L.* Dr. Winkler, of Insbruch, mentions that the infusion of this plant is used in the Tyrol for killing vermin on animals; and that unpleasant accidents have been produced in man by its accidental use. Its effects appear to be sometimes irritant, but more generally narcotic in their nature (Repert. Fer. die Pharm. xiv. 311); Christison on Poisons. Lindley says that it excites vomiting. The powder contained in the thecæ is highly inflammable, and is employed in the manufacture of fireworks. According to M. Vastring, this species is likely to become of importance in dyeing (Nat. Syst. Bot. 314). Some authors look upon it as very dangerous, a minute dose producing violent vomiting, in larger quantities acting as a narcotic poison (Bischoff, Bull. de Sc. Méd. Fér. xxi. 430). Zingler having taken a small quantity, found himself sick in four minutes, and fell into a state of syncope; vinegar relieved him, but he did not recover his memory for some time. The Selago enjoyed a great reputation among the Druids, and they expressed the juice for many maladies, particularly those of the eye. It is supposed that the plant referred to by Pliny is not this (Glossaire, 284; Archives de Méd. iv. 380; Merat & De L., Dict. de M. M. iv. 168).

Lycopodium clavatum. This also excites vomiting, its thecæ likewise contains an inflammable powder, and M. Westring thinks it will become useful in dyeing. He asserts that woolen cloths boiled with Lycopodiums, especially this species, acquire the property of becoming blue when passed through a bath of Brazil wood (Lind., Nat. Syst. 314). The powder sold in the shops as vegetable sulphur, consists of the extremely small, pale yellow particles (sporules?), employed as a dusting powder for children, and in pharmacy for enveloping pills to prevent their adhesion (Pereira, Mat. Med. and Therap. ii. 47; Murray's Apparat. v. 489). It is also used as an application to seriginous ulcers. In Poland it is used in Plica, hence termed *Herbe à la Plique*. The

decoction is given internally in rheumatism, in retention of urine, in nephritis, and in epilepsy. It passes for an anti-spasmodic, and is employed in pulmonary diseases, hence the name *Pulmonaria*. Martins says that in Russia, in Hungary, and in Gall, it has been administered in hydrophobia (Bull. des Sc. Méd. Ferus. xxi. 430). Some assert that, in doses of thirty grains, the powdered plant will vomit. M. Cadet, by analyses, showed that the powder contained wax, sugar, extractive matter, alumina, probably combined with sulphuric acid, iron, and some salts (Bull. de Pharm. iii. 31; Bibl. Britan. xxv. 278). Alcohol dissolves one-eighth of it. The principal use of the powder is in making artificial lightning, as it bursts quickly and throws out luminous points (Bull. des Sc. 89; Archer. Gen. de Méd. x. 133; C. F. Garmann, de Museo Terrestri, Musc. Cur. Nat. 1670; G. W. Wedel, Diss. de Museo Terrestri Clavato, 1702; M. & De Lens' Dict. de M. M. 167; M. Richards, Elems. d'Hist. Nat. Med. ii. 53). "It is said to restore rosy wine in a few days" (Wade's *Plantae Rariores*, 94).

Lycopodium phlegmaria. "Reputed to be aphrodisiac."

Lycopodium cernium. Among the Antilles is used as a diuretic and as fomentation to gouty tumors. The vinous decoction is given in tenesmus, dysentery, scurvy, &c. The powder is reputed carminative (Flore Méd. des Antilles, iv. 73; M. & De L. iv. 166). The powder is found serviceable in the cure of sanious ulcers, according to Dr. Foerster (Abeilc Médicale, July, 1845).

Lycopodium lepidophyllum. This is hygrometric, and, rolled into a ball, will indicate humidity of the atmosphere (Suppl. vol. to M. & De Len's Dict. de M. Méd. 442).

Lycopodium complanatum. In Germany it is regarded as a powerful lithontriptic—given in tincture (Pallas' Voyage, i. 93). Westring, Extrait du Mém. sur les teintures que l'on peut retirer des Lycopodes. Bull. de la Soc. Phil. iii. 224; Merat & De Lens' Dict. de M. Méd. iv. 167.

Lycopodium hygrometricum, Mart. In Brazil, according to Martins, it is employed to restore the generative faculties (Journ. de Chem. Méd. vi. 213; M. & De L. iv. 167).

TRIBE II. MUSCOIDEÆ (*Moss-Like Plants.*)

 ORDER I. MUSCI, LINN. (*Mosses.*)

AMONG all of the plants of the Class Cyp togamia, no Order, perhaps, presents, says Sir Wm. Jackson Hooker, a more varied and exquisitely beautiful structure than the mosses, whether we consider their foliage, their capsules, or the delicate single or double fringe which surrounds the month of the latter. They exist most abundantly in temperate and cold climates, attaining perfection during the winter months. They invest rocks and trees, especially in a northern exposure, to a considerable extent, “affording,” says Linnæus, “a harbor to an immense number of insects, protecting them lest they should be destroyed by the frosts of winter, or be parched by the heats of summer, or withered by the vicissitudes of spring, or decayed by the damps of autumn.”

The following references respecting this order we obtain from Merat & DeLens’ Diet. de. M. Med. iv. 499 ; G. G. Richter, Diss. de Muscorum notis et salubritate, 1747 ; Pultney, Mem. sur les Mousses (Phil. Trans. 1758) ; Linnæus, De Usu Musc. 1766, in Amcen. (Acad. 145) ; Vogler, Diss. de Muscis, 1774.

Dicranum bryoides, Sw.

Fissidens “ Hedw.

Hypnum “ Linn.

The moss which engaged Mungo Park’s attention so much in Africa as to revive his drooping spirits when sinking under fatigue, is this species, as I have ascertained by means of original specimens given to me by his brother-in-law, Mr. Dickson.—C. Eng. p. 36.

Fumaria hygrometrica, Hedw. (Hygrometric Cord Moss ; grows on old walls and woods). It undergoes such changes in wet and dry weather as to make an excellent hygrometer.

Polytrichum Commune, L. (Common Hair Moss. Heaths and woods in sandy soils.) It is inodorous, and slightly astringent, and is said to be deobstruant, diuretic, lithontriptic, sudorific, and emmenagogue. J. P. Bonnafoux speaks very favorably of it with respect to the property last mentioned ; and he relates

twelve cases of success in its use. He gives drachm doses of the infusion mixed with milk. The decoction is said to cause the hair to grow. According to Ferrein (Mat. Med. 11, 67), a physician of Aigle found it very efficacious in pleurisy. Flore Med. v. 279. It is now supposed to be inert (De Cand., Essai, 310). It is employed for economical purposes, making cushions, beds, &c., which are free from insects and moisture. Rév. Med. ii. 405, 1831. Merat & De L., Dict. de Mat. Méd. v. 445.

<i>Bryum affine</i> , Brid.	{	Many stalked Thyme
<i>Mnium cuspidatum</i> , Hedw. sp. M.		thread Moss. S. C. to
		Northern States (H. W. R.)

The capsules are the favorite food of hares and rabbits. C. Eng.

Fontinalis antipyretica, Linn. Greater Water Moss. Rivers and stagnant water. Fl. June. New England and Northern States.

The specific name was given to the plant by Linnaeus, in allusion to the use made of it by the Swedish peasantry, who fill up with it the spaces between the chimney and the walls in their houses, and thus by excluding the air prevent the action of the fire.—C. Eng. 13.

Hypnum purum, Linn. (Neat Meadow Feather Moss.) On the ground, on banks, and in woods; abundant. Fl. Nov.

Dillenius informs us that the specific name of this very common moss is derived from the use made of it in some parts of England, in cleansing worms for fishermen.—Cyp. Eng.

ORDER II. HEPATICÆ (*Liverworts*).

Minute frondose plants. Their substance is loosely cellular, in general easily reviving after being dried, by the application of moisture. Cryptogam. of England.

<i>Jungermannia planifolia</i> , Hook.	{	Flat-leaved Jungerman-
“ <i>nemorosa</i> , Lindenb.		nia. Moist rocky places.
<i>Scapania</i> “ Nees.		S. C. to N. S. (H. W. R.)

This species has been observed by Mr. Wilson to have a very

fetid smell, resembling castor, giving out its odor while drying, and on being again moistened.—C. Eng.

Anthoceras Linn. (Sides of ditches.) Two species in S. C. (H. W. R.) These, among the lowest order of vegetables, are nothing more than a simple membranous expansion resting on the earth, their structure being homogeneous; hence every portion is in direct relation to its nutritive materials, and these in so elementary a state as to enable us to examine into the most simple states of which we can conceive. For further observations, see Payer, *Botanique Crypt.* 1850.

Marchantia hemispherica, L. } Sides of streams. April.
Rebouillia, Raddi. } S. C. to N. Scotia.

Dr. Short, physician to the Royal Infirmary at Edinburgh, being struck with the insufficiency of remedies for certain dropsies, resolved to try this plant, which was a popular remedy in Ireland. In a large number of cases it acted surprisingly well; but, like most of the diuretics, it failed in others. The decoction may be used, or a cataplasm, made of two pounds of the fresh plant, “lavée et mise à bouillir dans un litre d’eau pendant douze heures,” adding a sufficiency of water upon its evaporation. The pulp beaten up is used as a cataplasm. It was found to produce considerable transpiration, and acted powerfully on the kidneys.—*Edinburgh Med. and Surg. Journal*, 1833. Merat, from which we translate in quoting the above, supposes that the *M. polymorpha* possesses similar properties. Dr. Levrat-Perrotan employs with success the decoction in gravel, and he reports cases in which it was of much service. Dr. Gensoul uses it as a diuretic (*Rev. Méd.*, Janvier, 1845). The decoction may be made with an ounce or two of the plant added to one pint of boiling water.—Merat & De L., *Diet. de M. Méd. Suppl.* vol. 457.

Marchantia polymorpha. Moist situations; July. This, with the above and the *M. conica*, are regarded as active diuretics. By the beautiful researches of Mirbel upon the nature of the sporangia of this plant, a close analogy has been demonstrated between these and the anthers of phanerogams. See also the researches of M. M. Decaisne, Hedwig, and Schmiedel, respecting the *Zoothiques*; Payer, *Botanique Cryptogamique*, 1850; for review and notices of

which, the reader may consult the Charleston Medical Journal, Jan. 1851. The little filamentous bodies found in the reproductive organs of mosses, hepatics, and fungi, are endowed with motion, and are known as *bryozoaires*, and by others as *phytozoaires*. According to Mirbel, the action of light and moisture upon the spores of the *M. polymorph.* was so remarkable as to determine the development of mouths (stomata) on the one surface, and of roots and nerves on the other, and *vice versa*. More than this, the two faces of the lozenge-like body being alike, the prolonged action of light upon one side, and of shade and humidity upon the other, sufficed to dispel the resemblance, and to induce unequivocally the approaching difference in the two surfaces, so that one could very easily distinguish them into superior and inferior, without changing their position.

ORDER III. CHARACEÆ (*The Chara Tribe*).

Aquatic plants, always submerged, composed of simple or compound membranaceous brittle tubes, often invested with a calcareous covering. Dr. Brewster denies that the calcareous matter with which several *Charæ* are invested, arises from that substance being held in solution by the water in which they grow: for he discovered that the plants were phosphorescent when laid upon heated iron, so as to display their entire outlines in the dark: also, that each group or mass of the calcareous matter (which is held to the stem of the plant by a very fine transparent membrane) consisted of minute aggregated particles which possessed double refraction, and had regular depolarizing axes.* The movement of sap in the *Chara* has been distinctly observed by Prof. Amici, of Modena. M. Blainville witnessed the phenomena also; and he observed that the microscope brought to view a movement of two liquid currents, the one ascending and the other descending, circulating in the same tube, without being separated by any partition which could insulate them. The nucleoli are found in a fossil state in marl. The *Charæ* are found carpeting the bottom of ditches and stagnant waters, and frequently yielding a very disagreeable odor. Trout and carp are said to arrive at a great size where these plants abound, feeding, perhaps, on

* Ed. Phil. Journ. Vol. ix. 194.

their fruit, and more generally on the insects which they necessarily harbor. Crypt. of England.

The plants which, under the microscope, exhibit a true and most remarkable circulation, are *Valisneria spiralis*, *Caulinia fragilis* of W.; *Hydrocharis*, &c.; Bull. des Sc. Nat. Ferus., xviii., 226; Mérat & De Lens, ii. 207; Payer's Botanique Cryptogamique, 1851. For a notice and review of the book, see Charleston Med. Journal and Review, Jan. 1851, where the reader will find a condensed account, by the Committee, of the researches of the most recent inquirers. The vegetable animalcules, or phytozoa, observed on these plants, according to the extended examinations of Thuret, move about in water, and suggest to us the ciliary motions of epithelial scales, and that of spermatozoa in man.

Chara vulgaris, L. By a chemical analysis of Chevallier and Lassaigne, an animal principle was demonstrated to exist in this plant. Journal de Pharm. iv. 152, 379, 460.

TRIBE III. APIHILLÆ (or leafless, flowerless plants).

* ORDER I. LICHENES.

Perennial plants, varying exceedingly in their form, appearance, and texture. No Lichen is ever submerged; and none are developed in mines, caverns, and places deprived of light. They have been remarked by Decandolle to possess two distinct classes of characters: the one rendering them fit for being employed as dyes, after maceration in urine; the other making them nutritive, and medicinally useful to man. M. Braconnot has ascertained that oxalate of lime, or oxalic acid, exists in great abundance in Lichens, particularly in those which are granular and crustaceous. The common variola, which is found upon almost every old beech tree, contains rather more than 29 per cent. (Ed. P. J. 13, 194). Lichens that grow on the summit of fir trees have been found by Dr. John, of Berlin, to contain an uncommon proportion of oxide of iron, which may be viewed as illustrative of the formation of iron by the vegetable process (Ib. 2, 394). The nutritive property depends upon the presence of an amylaceous substance analogous to gelatine. Lind., Nat. Syst. 329; Decand., Essai Méd. 318;

Agardh., Aph. 94; Supplem. Vol. to Mér. & De L., 431; Schunck, Prelim. Note on Lichens which furnish coloring matters, in Jour. de Pharm. 1206, 1842.

<i>Endocarpon miniatus</i> , Ach. <i>Lichen</i> , L.	{	A coloring matter is extracted from this plant, though inferior to that from the <i>E. pustulatus</i> , L. (<i>Umbilicaria pustulata</i> , Schrad.)
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Lepraria chlorina. Used as a dye. Lind., Nat. Syst. Bot. 329.

<i>Variolaria faginea</i> , Pers. “ <i>communis</i> , Ach. <i>Lichen fagineus</i> , Linn. <i>Pertussaria</i> .	{	Bitter-zoned Variolaria. Common on the bark of trees, especially of old beech (Northern States to Arctic America, Tuckerman).
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The intensely bitter taste of this lichen distinguishes it from every species hitherto discovered. M. Braconnot detected in this and several other crustaceous lichens, oxalic acid; in the present plant in such abundance that 100 parts yielded 18 of lime, combined with 29.4 of oxalic acid; and nearly the same quantity in several other crustaceous lichens. And he remarks, that the oxalate of lime bears the same relation to the cryptogamia as carb. of lime to corals, and phosphate of lime to the bony structure of the more perfect animals. “It diminishes, however, gradually in the family of *Lichens*, in proportion as the species lose their general crustaceous texture, and approach more and more to the membranous or cartilaginous, although the latter also contain a considerable quantity of salt.” Edinb. N. Phil. Journ., v. 13, p. 193. “M. Braconnot strongly recommends the adoption of *V. faginea* in the production of oxalic acid, and an eminent French chemist now informs me that it is so employed in France, and upon a very extensive scale.” Crypt. of England. The *V. communis*, *Pertussaria communis* of Ach., is found in S. C. and in the Northern States. Tuck.: (H. W. R.)

Variolaria oreina. A coloring paste, *Orseille de Terre*, is made from this plant. From the recent analysis of M. Robiquet (Jour. de Chim. Méd. v. 324), among other active principles he found a sweet substance, which had the property of striking a beautiful red tint with ammonia. This able chemist proposes the name

Orcine for it. Another coloring matter is obtained from *Lecanora parella*, under the name *Parelle*, or Orseille d'Anvergne. A principle has been isolated from some of these called *variolarine*. M. Richard, Elements d'Hist. Nat. Méd. ii, 45.

<i>Variolaria lactea</i> , Pers.	}	Used in dyeing. Lind., Nat. Syst. 329.
<i>Lichen lacteus</i> , Linn.		

<i>Urceolaria</i> .	}	(Now a sub-section to Parmelia. H. W. R.)
<i>Lichen esculentus</i> , Pallas.		

In Russia, employed as fodder for cattle. M. & De L., Dict. de M. M.

<i>Parmelia scruposa</i> , Sommerfelt.	}	Common urceolaria. N. States to Arctic America. Tuck.
<i>Urceolaria</i> " Ach.		
<i>Lichen scruposus</i> , Dicks.		

Used in dyeing. Lind., Nat. Syst. 329.

<i>Parmelia cinerea</i> , Fries.	}	Gray urceolaria. Northern States to Arct. America. Tuck.
<i>Urceolaria</i> " Ach.		

Used in dyeing. Lind., Nat. Syst.

<i>Parmelia copreatæ</i> , Ach.	}	Wrinkled sulphur lichen. N. S. to Arctic America. Tuck.
<i>Lichen</i> " "		

A plant under this name, Wade says, is useful to dye wool of an orange color. Plantæ Rariores, 135.

Lichen esculentus, Pall. (?) This plant, allied to the genus *Lecanora*, is found in the East as a sort of manna, and is used as bread. Eversmann, in *Lichen Esculent*, Pukasii (Act. Acad. Caes. Cop. XVII. ii. 530); Supplem. Vol. to M. & De Lens, Dict. de M. Méd. 428.

Lecanora tinctorius, Fee. It is supposed that cinnabar, or an analogous color, may be obtained from this plant, which is found in Brazil. M. Fee thinks it is the same with the *vegetable cochineal* analyzed by M. Vanquelin. (Ann. du Mus. vi. 145); (Ehr. iii. 579; M. & De L., Dict. de M. Méd. iv. 107.)

<i>Parmelia tartarea</i> , Ach.	} Tartareous Lecanora, or cud-
<i>Lecanora</i> " Ach.	
<i>Lichen Upsaliensis</i> , Linn.	
" <i>tartareus</i> , "	
" <i>frigidus</i> , Sw.	} bear; on rocks. N. S. to British America. Tuck.

It is employed to make litmus, and to produce a purple for dyeing woolen yarn; "and nowhere, perhaps, used more extensively than in the manufactory of Mr. Macintosh, of Glasgow. This gentleman imports it largely from Norway, where it grows more abundantly than with us; yet, in the Highland districts, many an industrious peasant gets his living by scraping off the lichen with an iron hoop, and sending it to the Glasgow market." When I was in Fort Augustus, some years ago, remarks Mr. Hooper, I was informed that a person could make 14s. per week at this work, selling the material at 3s. 4d. the stone of 22 lbs. The fructified specimens are reckoned the best. Crypt. England; Pereira, M. Med. 45. The gatherers carefully choose such specimens as are of a firm, dense texture, and they never scrape the same rock oftener than once in five years. It is prepared for use with volatile alkali and alum. Engl. Botany, 5, 3, 156; Smith's Tour on the Continent, 198; Wade's Plantæ Rariores, 122.

<i>Parmelia pallescens</i> , Fries.	} Crab's-eye lecanora, or perelle.
<i>Lecanora parella</i> , Ach.	
<i>Lichen parellus</i> , Linn.	
	} Orseille de terre. Mountainous districts. N. S. and Northwards. Tuck.

In Auvergne, in France, it is extensively employed to produce a dye far superior to that of the *cudbear*, and quite equal to that of the *archill* (*Rocella tinctoria*). Crypt. Eng. 191; Lindl., Nat. Syst. 329. It is macerated for ten to twelve days in urine, till it acquires a red or intense violet color, when it is formed into a cake. The taste is bitter and mucilaginous. M. Prost., Liste des Crypt. de la Lozère; M. & De Lens. The tinctorial paste is known as *Parelle*, or Orseille d'Auvergne; prepared with care, it is of a beautiful amaranth red tint, used with advantage, though it does not possess much fixity. See, also, Variolaria, M. Richard, Elems. d'Hist. Nat. Médicale, 1145; see work of Amoureux, of Montpellier, 1787; Tournefort's Eng. Bot. xi. 727. "Litmus is prepared from this species of lichen. For this purpose it is gathered from the rocks in the North of England, and sent to London." Withering, 5, 4, 16; Wade's Pl. Rariores, 121.

- *Lecanora Hematomma*, Ach. { Blood-specked lecanora.
Lichen coccineus, Dicks. Cr. Fasc. { Rocks and brick walls.
 Used in dyeing. Lind., Nat. Syst. 329.

Parmelia atra. { Black-shielded lecanora. N. S. and
Lecanora atra, Ach. { Northward. Tuck. S. C.! H. W. R.
 Used in dyeing. Lind., Nat. Syst. Bot. 329.

Parmelia physodes, Ach. { Inflated parmelia. S. C.
Lichen " L. { H. W. R.

Used in Tartary as an application for the cure of recent injuries.

Parmelia Fahlunensis, Ach. { On rocks on mts. of Eng-
Lichen " Linn. { land; Alpine rocks; White
 and Green Mts. Tuck.

Said to be remarkable for its black color, and for furnishing a good vermilion tint. Merat & De Lens. iv. 99; Prost., Cat. des Pl. de la Lozère.

Parmelia encausta, Ach. Encaustic parmelia. Used in dyeing. Lind. The *P. conspersa* and *parietina* are employed for the same purpose; the latter is also astringent.

Parmelia parietina, Ach. { *P. parietina* Fr. S. C.! (H.
Lichen " Linn. { W. R.) and Northward.

Dr. Sander assures us that the powder of this species is more efficacious than quinine in the intermittent fevers of autumn, even in rebellious quartans. Journ. de Hufeland, 1806; Biblioth. Méd. 4, ix. 115. It has a taste like quinine, and an essential oil, which Gumprecht says is analogous to that of the Peruvian bark. Journ. de Pharm. v. 309. Serhoder has given an analysis, which does not show any of the principles found in the febrifugal barks. Merat & De L., Dict. de M. Méd. iv. 104; Traité Chim. sur le Lichen des Murailles (in German); Journ. de Pharm. xx. 536, 1834.

Parmelia saxatilis, Ach. { Gray-stone parmelia. Trees,
Lichen " Linn. { rocks, and stones. N. States to
 Arctic America. Tuck.

Used in Scotland to dye woolen stuffs of a dirty purple. Crypt. Eng. 199; Lind., Nat. Syst. 329. Merat says that this

plant is a monument of the credulity of man, inasmuch as some thought that it grew on the human head, and they attributed to it imaginary and superstitious virtues, under the name of *Muscus Cranii Humani*, etc. It was prescribed, among some of the old authors, to promote the growth of hair among the bald; so, also, *Usnea plicatus* was supposed to have the same power. Macerated in urine, it gives a red color: in vitriol, a brown tint is added. It is said that in Scotland more than two hundred persons are employed gathering it. Hoffman, de Vario Lichenum Usu, 27; Diet. de Mat. Médicale, iv. 107.

Parmelia omphalodes, Ach. } Purple rock parmelia.
Lichen " Linn. }
 Used in dyeing. Lind., Nat. Syst.

Parmelia rotundatus, Rottl. This is employed in India as a restorative in fatigue, and as a liniment for the head. Ainslie, M. M. ii. 170; Merat & De Lens, iv. 107.

Sticta fuliginosa, Ach. } Sooty Sticta. On rocks and
Lichen fuliginosus, Dicks. } trees, in subalpine countries.

This, and the *S. Sylvatica*, Ach. have a remarkably fetid smell, which has been compared to that of the urine of mice. C. Eng.

Sticta pulmonaria, Ach. } Lungwort Sticta. Investing
Lichen pulmonarius, Linn. } trunks of trees, S. C., H. W.
 (R.; Northward, Tuck.

A substitute for *Cetraria islandica*. Lind. 329. Also used in Siberia, for jaundice—for giving a bitter taste to beer. It dyes wool brown.

Collema nigrum, Ach. Inky Collema.

The genus *Collema* is gelatinous. This species forms ink-like stains upon the rocks on which it grows.

Collema fragrans, Ach. } Fragrant Collema. On trunks
Lichen " E. Bot. } of elms and ash.

This plant "is remarkable, when moistened, for its very sweet aromatic scent, not unlike the sp. vol. aromaticus of the apothec-

caries, though of course much fainter." Mr. Borrer noticed this in other species also. C. Eng.

Peltidea apthosa, Ach. } Thrush Peltidea. Moist, shady Al-
Lichen apthosus, Linn. } pine rocks. *P. apthosa* of Hoffman,
 } N. S. to Arctic Am. Tuck.

The Swedish peasants boil it in milk, as a cure for the apthæ, or thrush, in children. Crypt. Eng. An anthelmintic. Lind., Nat. Syst. 329. Willemet seldom failed to observe its power as a vermifuge, when given in doses of twelve grains, evening and morning, during six or eight days. Lichenog, i. 22. It is also said to possess some emetic effect. Mérat & De Lens' Dict. de Mat. Méd. iv. 98; Richard, Elements d'Hist. Nat. Méd. ii. 43.

Peltidea canina, Ach. Canine Peltidea. Upon the ground; on roofs of houses. *P. canina*, Hoff. In S. C. H. W. R. Northward, Tuck.

Formerly employed, at the suggestion of Dr. Mead, as a cure for the bite of a mad dog. Crypt. Eng. Pereira. It was used in England for this purpose, according to the Trans. Phil. Abrégés, ii. 26, 38. Also employed, Martins states, in Smolensk. Bull. des Sc. Méd. de Férus. xiii. 355; Sprengel, Hist. de la Med. v. 493. Zayyard classes it among the diuretics. Essai, en Allemand, sur les Morsures des Chiens Enragés, Leipsic, 1778; Mérat & De Lens' Dict. de M. Méd. iv. 99.

Gyrophora proboscidea and vellea. } Mts. of N. Eng. and
Umbilicaria " " } northwards. Tuck.

Found on granite, and constituting the Tripe de Roche of the Canadians, with *G. proboscidea*, *S. Vellea*, and a few other American ones. They supported Capt. Sir John Franklin and his brave companions in Arctic America, during a season of want such as, happily, few human beings have been subjected to. They are, however, bitter and nauseous, and can only be employed in the total absence of every other salutary food. Crypt. Eng.; also Lind., Nat. Syst.

Gyrophora cylindrica, Ach. } Fringed Gyrophora. Abund-
Lichen proboscideus, Linn. } ant on mountain rocks. Brit-
Umbilicaria crinita, Hoffm. } ish America. Tuck.
 " *cylindrica*. }

It is used in Iceland occasionally as food, and more frequently for dyeing woollen cloth of a brownish-green color. C. Eng.

Umbilicaria pustulata, Schrad. { Blistered Lichen, Orseille
Lichen " Linn. { de terre. On Mts. of S. C.,
 Ga. H. W. R.

According to Linnaeus, a beautiful red color may be prepared from it; and it may be converted into "an exceeding fine black paint." Wade's *Plantæ Rariores*, 136.

Umbilicaria Muhlenbergii.

Tripe de Roche was used by Sir John Franklin in his journey to the shores of the Polar Seas, and is "agreeable and nutritious."

Cetraria Islandica, Ach. { Iceland Cetraria. On the moun-
Lichen Islandicus, Linn. { tains of the North, both in the Old
 and New Continents; "abundant
 on the mountains and sandy plains
 of N. England." (U.S. Disp.) N.
 States. Tuck.

"In great request as a medicine in coughs, consumptions," &c. Immense quantities are gathered in Iceland, not only for sale, but for their own use as an article of common food. "The bitter and purgative quality being extracted by steeping in water, the lichen is dried, reduced to powder, and made into a cake, or boiled and eaten with milk. Crypt. Eng.

This plant is officinal in the U. S. Disp. Macerated in water it absorbs rather more than its own weight of the fluid, and if the water be warm, renders it bitter. Boiling water extracts all its soluble principles. The decoction thickens upon cooling, and acquires a gelatinous consistence. The dissolved matter is insoluble in cold water, alcohol, or ether; but soluble in boiling water, and in solution forming a blue compound with iodine. This principle has received the distinctive name of *lichenin*. Berzelius found in 100 parts of Iceland moss, 1.6 of chlorophylle, 3.0 of a peculiar bitter principle, 3.6 of uncrystallizable sugar, 3.7 of gum, 7.0 of the apotheme of extractive, 44.6 of the peculiar starch-like principle, 1.9 of the bilichenates of potassa and lime mixed with phosphate of lime, and 36.2 of amylaceous fibrin—the excess being 1.6 part. *Traité de Chim.* vi. 251. The name of *cetrarin* has been conferred on the bitter principle of Iceland moss. See Dr. Herberger's method of preparing it, U. S. Disp. 204; *Journ. de Pharm.* xxiii. 505. By this process one pound of moss yielded 133 grains of *cetrarin*. This principle is white and exceedingly

bitter, especially in alcoholic solution—absolute alcohol being its best solvent. Ether also dissolves it, and it is slightly soluble in water. It is precipitated by the acids, and rendered much more soluble by the alkalies. In the dose of two grains repeated every two hours, it has been used successfully in intermittent fever. Journ. de Pharm. *l. c.* Drs. Schnedermann and Knop have ascertained, that the cetrarin above referred to consists of three distinct substances, viz. *cetrarinic* acid, *lichstearic* acid, and *thallochlor*. Chem. Gazette, Jan. Feb. 1846; from Ann. der Pharm. iv. 144.

The gum and starch render it sufficiently nutritive to serve as food, the bitter principle having been freed by repeated maceration in water, one part of an alkaline carbonate being dissolved in 375 parts of the water, decanting and repeating the process. This process was suggested by Berzelius. U. S. Disp. 295; Pereira, ii. 41; Richard, Elms. d'Hist. Nat. Méd. ii. 1.

We will not extend these notices by including the information given by Mérat & De Lens in the Dict. de Mat. Méd. iv. 106, as the plant is so well known.

Iceland Moss, according to the U. S. Disp. is demulcent, nutritious, and tonic, and “well calculated for affections of the mucous membranes of the lungs and bowels, in which the local disease is associated with debility of the digestive organs, or the system generally;” also used in dyspepsia, chronic dysentery, and diarrhœa. It has, moreover, been given in the debility succeeding acute disease, or dependent on copious purulent discharge from external ulcers. But the complaint in the treatment of which it has acquired most reputation, is pulmonary consumption. It had long been employed in this disease, and in hæmoptysis, by the Danish physicians, before it became known to the profession at large. It was used extensively; but the cases in which it was supposed to have effected cures, are believed to have been nothing more than chronic bronchitis. The powder is sometimes given in the dose of thirty grains or a drachm; and a preparation at one time obtained some repute, in which the ground moss was incorporated with chocolate, and used at the morning and evening meal as an ordinary beverage. U. S. Disp.

<i>Cetraria Glauca</i> , Ach.	}	N. States and Northwards. Tuck.
<i>Lichen</i> “ Linn.		

With alum and green vitriol it affords a carnation color. Prost., Cat. des Pl. de la Lozère; M. & De L.

Cetraria nivalis, Ach. } Snow Cetraria. White Mts. and
Lichen " Linn. } Northwards.

This may be used as a substitute for the *C. Islandica*. Lind., Nat. Syst. 329. The powdered plant is said to act as a specific in hydrophobia. Mérat. & De L.

Rocella tinctoria, De Cand. } Dyer's Rocella. Rock moss,
Lichen rocella, Linn. } or archill. On maritime rocks.

"This interesting lichen is the famous archill, or orchill—Orseille of the French—which yields the most valuable dye of all this tribe." It derives its name from a Florentine family, one of whom, in 1300, carried on a considerable trade in it, and who first made known in Europe its valuable properties. The Canary Islands formerly yielded it, and it was called Canary weed. So great has been its consumption of late, that the best quality of it, whose average price is £200 the ton, has become extremely scarce; and what is commonly imported from other countries is not worth £30 the ton. "The English blue broadcloths are first dyed with archill, which gives their peculiar luster, and purple tint when viewed in a certain light." C. of England; Lind., Nat. Syst. 329. According to an analysis of Nees, it contains a brown resin, wax, glutinous matter, insoluble starch, gummy matter, lichenin, tartrate and oxalate of lime, and chlo. of sodium from the adherent sea-water. Dr. Kane, in the Phil. Trans., 1840, 273, has instituted a still more elaborate investigation. Among the products is a substance called rocelline. The coloring matter is *Erythrine*. Litmus was formerly procured from this plant. Blue orchill is procured by steeping the lichens in an ammoniacal liquor, in a covered wooden vessel. Red orchill is made with the same liquor in common earthen jars, placed in a room heated by steam. Pereira, M. M. ii. 42; Thompson's Org. Chem. 284; Nees and Ebermaier, Hand. i. 49. It was formerly an article of some commercial importance, was well known to the ancients (Pliny, xxvi. c. 10); the secret source of their purple dye was lost till, in 1300, a merchant of Florence discovered that urine communicated to the plant a beautiful violet color; the knowledge of this was confined to this country and to Holland. Bancroft on Philos. of Color, p. 282. M. Robiquet found in the plant a sweet substance susceptible of crystallization. Journ. de Pharm., xv., 298; M. & De L., Dict. de M. M. The tincture is employed to prevent the itching which exists in the throat in some coughs. Coxe's Am. Disp., 368. M. De Candolle says that in the Isle of

Mauritius they make with it a preparation for diseases of the kidney. Essai, 318; Morelot, Mem. de la Soc. de l'Emulation, 281; Richard, Elems. d'Hist. Nat. Méd.

Rocella Phycopsis, Ach.

This is abundant on the coast of Brittany, and may be employed in place of the *R. tinctoria*. Bory, Dict. Classiq. d'Hist. Nat. xiv. 630; and Botanique du Voyage en Morée. 310.

Rocella fuciformis, De Cand. Flat-leaved archill.

Inferior as a dye to the preceding. Lind., Nat. Syst.; Crypt. Eng.

<i>Borrera furfuraceus</i> , Ach.	}	Trunks and branches of
<i>Lichen</i> " Linn.		
		trees.

It is very bitter: it is regarded as a febrifuge, and is given in place of quinine. It furnishes an olive-green color. Prost. Cat. des Pl. de la Lozère; M. & De L. Dict. de M. Méd., 11, 99.

<i>Evernia prunastri</i> , Ach.	}	Ragged hoary evernica. Trunks
<i>Lichen</i> " Linn.		
		and branches of trees. N. S. and
		Northwards. Tuck.

This lichen was brought into use in Glasgow, by the late Ld. Dundonald, and employed, during the war, instead of gum, in calico printing, staining of paper, &c.; it afterwards fell into disuse as a very inferior substitute for that article. C. of Eng.; Nichol., Journ. 401. It is reputed to be astringent and febrifugal. Lind., Nat. Syst. In Egypt it is used to make bread rise, and to ferment beer. Dict. des Sc. Nat., viii., 519. Macerated with green vitriol it furnishes a color between brown and red. Prost., Liste des Pl. de la Lozère; Mérat & De Lens, iv. 105. "It has a remarkable property of imbibing and retaining odors, and is, therefore, the basis of many perfumed powders." Withering; Wade's Pl. Rariores; Demidoff, Extracts of a Voyage in Southern Russia, p 148 (in French).

<i>Evernia vulpina</i> .	}	Grows in Mts. Rocky Mts.
<i>Lichen</i> " Linn.		
		Tuck.

The *Borrera flavicans* of Ach. is the *L. vulp.* of Huds. According to Linnæus, the Norwegians mix this species with powdered glass, of which, with flesh of dead animals, they make a

cake to poison wolves. It has no other deleterious effect. Mérat & De Lens, Diet. de M. M., iv., 107. Wade states that it is supposed to dye woolen yellow. *Plantæ Rariores*, 130. M. Babbert has extracted a substance from it which he calls *vulpine*. Journ. de Chim. Méd., vi., 696; M. and De L., Suppl. Vol. 1846, p. 430; Rochleder & Held, Researches upon some species of Lichen, in *Annuaire de Chimie*, 1843; Knop., Chim. Phys. Res. upon Lichens, *ed.*, 449.

<i>Ramalina scopulorum</i> , Ach. and Hook., C. Eng.	{	S. C. (H.
<i>Lichen calycaris</i> , Linn.		W. R.) and
		Northw'ds.
		Tuck.

L. calycaris, Wade says, is reputed to dye a red color equal to the famous Lichen Rocella or orchill, which commanded at one time £1,000 a ton, and which was used to dye wool or silk any shade of purple or crimson. Lightfoot, in his *Flora Scotica*, asserts that *L. calycaris* was formerly used instead of starch to make hair powder. *Plantæ Rariores*, 132.

<i>Ramalina frarinea</i> , Ach.	{	Ash Ramalina. Abundant on
<i>Lichen frarincus</i> , Linn.		the trunks, and especially on
Var. of <i>R. calycaris</i> , H.W.R.		the large branches of very old trees.

This, as well as *R. scopulorum*, Ach., has been used in Glasgow, for the same purpose as *Evernia prunastri*. A variety is used in Teneriffe, for the production of a yellow color. M. & De L.

Usnea plicata, Ach. Used as a dye. Lind., Nat. Syst. Bot. 329. Macerated with alum, it gives a green color; with alum and tin, a reddish-yellow. Prost., Liste des Pl. Crypt. de la Lozère. The Laplanders place it under their feet when on a long journey; and they employ the powder to stop hemorrhages. Linn., *Flora Lap.* 348; M. & De Lens, iv. 105.

<i>Alectoria jubata</i> , Ach.	{	Wiry Alectoria, or Rock Hair.
<i>Lichen jubatus</i> , Linn.		Trunks of trees, especially firs; also
<i>Evernia jubata</i> , Fries.		upon rocks. White Mts. to Arctic Am. Tuck.

Linnaeus tells us that in winter, when the snow is very deep

upon the ground, this lichen supplies the reindeer with food. It is used as a dye. Lind., Nat. Syst.

Alectoria usneoides.

This plant, from the gelatine it contains, will answer the place of the Iceland moss. Lind., Nat. Syst. 329.

Isidium Westringii. Ach.

Now considered a monstrosity, like *Lepraria*. (H. W. R.) Used in dyeing. Lind., Nat. Syst. 329.

<i>Claydonia rangiferina</i> , Hoffm.	{ Reindeer Claydonia, or Reindeer Moss. Moors, heaths, and mountains. S. C. (H. W. R.) and North- wards. Tuck.
<i>Cenomyce</i> " Ach.	
<i>Lichen rangiferinus</i> , Linn.	

Several species are employed as dyes. It is this which, for the greater part of the year, especially in winter, is the support of the vast herds of reindeer, wherein consist all the wealth of the Laplanders. It covers wide extent of countries; and these creatures can by penetrating the snow obtain their food. See *Flora Laponica*, where Linnaeus's beautiful description is given. Hooker's Eng. Flora. "M. Fee assures us," remarks Mérat, "that it may serve also as a nourishment for man, by depriving it of its bitter property by sufficient washing." Coms. d'Hist. Nat. Pharm. i. 177. And Fabricius, that the Icelanders make from it a nourishing jelly, by washing with water and cooking it with milk. Voyage, i. 99; M. & De L., Dict. de M. Méd. iv. 105.

<i>Claydonia uncialis</i> , Hooker, C. Eng.	} <i>C. uncialis</i> , Fr. N. C. and Canada. Tuck.
<i>Cenomyce</i> " Ach.	

Macerated with quicklime and urine, it gives a gray color. Prost., Liste de la Pl. de la Lozère; M. & De L., Dict. de M. M. iv. 107.

<i>Scyphophorus pyxidatus.</i>	} Common Cup Lichen. Heathy places on moors and dry woods. S. Car., H. W. R., and N'd. Tuck.
<i>Claydonia pyxidata</i> , Schoer Lich.	
<i>Cenomice pyxidata</i> , Ach. Syn.	
<i>Helv. Spicil.</i>	

Formerly employed by Willis as a remedy in whooping-cough. Crypt. Eng. Reputed to be astringent and febrifugal.

Pereira, M. Med. 45; Dillenius, Diss. de Lichene Pyxidat; Sehlegel's Thesaurus Mat. Medicæ, i. 307, Leipsic, 1793. Van Voensel, a physician of St. Petersburg, recounts its happy effects in that dry, irritable condition which is attended with a tickling sensation of the throat and lungs. Azeonovieta approved of its use in this affection, and, with Dillenius, advised it in phthisis. The dose is from one to two drachms. Sprengel, Hist. de la Méd. v. 493; Cullen, Med. Pract. iii. 96; edition of 1819. Mérat observes that this plant, so easily obtained, is too much neglected. It furnishes a tincture of a green color. Prost., Dict. de Mat. Méd. iv. 105.

<i>Scyphophorus cocciferus</i> , Crypt. Eng.	} Scarlet Cup Lichen.
<i>Cénomyce coccifera</i> , Ach.	
<i>Cladonia</i> " Schaer.	
" <i>cornucopioides</i> , Fries.	
	} On mountains. N. S.
	} and northwards. Tuck.

Reputed to be astringent and febrifugal. Lind., Nat. Syst. It has been given in convulsions and in rheumatism. Bruckmann's Epistle, 57; M. Azeonovieta, Obs. sobre el Muxus Pyxioides Terrestris, ó *Lichen cocciferus*, L., en la pertussis. Mérat & De Lens' Dict. de M. Méd. iv. 99.

ORDER 2.—ALGÆ (INARTICULATE).

Aquatic plants, with very few exceptions. The globules, in some genera, are enveloped in gelatine.

No cryptogamic plants have been more general objects of admiration and research; and if their value is to be estimated by the service that mankind derives from them, they will hold a high rank in the scale. Many are eaten in different parts of the world, especially in the North of Europe, and some are esteemed great delicacies. Cattle, at certain seasons of the year, repair to the shores at low tide, and devour the *sea-weeds* with great eagerness. From the marine *Algæ*, *Iodine*, a new principle, and possessed of very remarkable properties, is derived. It has been successfully employed in the cure of *goitres*; a disease which, Dr. Gillies informs us, has yielded, in South America, to the application of the stem of a certain *Fucus*, long before iodine was employed in civilized Europe. In the manufactory of Kelp, these same plants are of vast importance, and the value of land rose in Scotland (during the war on the continent, and when we were deprived of

the means of obtaining a pure alkali from the south of Europe) in a most extraordinary degree; so that the rocky boundary of our island yielded a great revenue to the different proprietors, and to our government, by the duty that was paid on the article produced. Crypt. Eng.

Acanthophora muscoides and *Gigantina helminthocorton* hold a place in the pharmacopœia as vermifuges. *Chondrus crispus* has been of late largely collected in Ireland, after it has lain and become bleached upon the beach, and is used very generally as a substitute for isinglass in making blanc-mange. The famous "*edible nests*" (the nest of the swallow called *Hirundo esculenta*) are said to be made from a species of sea-weed; and, lastly, we may mention that sea-weed is employed, to a vast extent, in the manuring of land in the vicinity of the coast, either thrown on fresh, or first laid in a heap to ferment and mixed with other vegetable manures. Crypt. Eng. Many fuci contain a gelatinous matter, and a sweet principle analogous to mannite. U. S. Disp., 1253; Dict. des Sc. Méd., xvii., 109.

<i>Sargassum vulgare</i> , Ag. Sp. Alg., 1.	{ Common <i>Sargassum</i> . Found on the sea shores. Florida Keys; Harvey. Long Island; Bailey.
<i>Fucus natans</i> , Turn. Hist.	

Mérat states that to the *F. natans* of L., lithontriptic and diuretic virtues have been attributed. Pison says it is very useful in pains, suppression of urine, nephritic colic, &c. Kalm reports that in America it is used as a febrifuge. In Spain, with vinegar, it is eaten as a condiment. D'Acosta recommended it in diseases of the bladder. Dict. de Mat. Méd., iii. 307; Dict. des Drogues.

Fucus serratus, Linn. Grev., Alg. Brit., p. 15. Serrated Fucus. Rocky sea shores; abundant. Spring and summer; not found on the American coast; W. H. II.

Lænnec having observed the comparative infrequency of phthisis on the shores of Bretagne, conceived the idea of creating a kind of factitious maritime air by the presence of these plants (Traité des Ausc. Médiat); but, though the experiment was made under his own eyes, it failed. Mérat & De Lens, Dict. de Mat. Méd., iii. 303. Vauquelin discovered in a number of the plants, mannite and a number of salts, in which hyd. of potash predominated. Mérat & De Lens, in Supplem. vol., 1846, and in the

Diet. des Sc. Méd., xvii. 125, express astonishment that more use is not made of the fucus abounding on the sea-coast, in making gelatine and as articles of food and commerce, as is done in China.

The fuci are among the most valuable of the tribes in the preparation of kelp. This species contains far less salt than *F. vesiculosus*, and is consequently much less esteemed for kelp. In Norway it is the food of cattle, sprinkled with a little meal, according to Gunner. The Dutch cover their crabs and lobsters with it, and say that it is preferable to *F. vesiculosus*, because the mucus from the vesicles of the latter ferments and soon becomes putrid. "It is employed as a manure, and with much benefit, though its value endures but for a single season. It is found peculiarly well adapted to potato culture, and when spread on the ground in winter yields an abundant crop of the very best hay. But if its application be deferred till the time of planting, the former produce, though equally abundant, is watery, ill-tasted, and unfit for the table, though it answers well enough for seed. This remark equally applies to all the Algæ, which, under the general name of *cart-wracks* are rolled ashore by the gales." Capt. Carmichael; Crypt. of Eng.; Turner's Synopsis of British Fuci, i. 1157. It constitutes a part of the fodder upon which cattle are supported in Norway. Grev., Algæ Brit., xix.; Lightfoot's Flora Scotica, ii. 903; Lind., Nat. Syst., 338. From the alkali obtained from this plant a soap is made, not much esteemed, on account of its hydro-sulphurous odor; it is, however, employed by glass-blowers. The Pacha of Tripoli is said to realize a large income from the sale of this plant. In Barbadoes they manure the land with it, in order to raise the sugar cane. Mérat & De Lens, iii. 307.

Fucus vesiculosus, Linn. Turn. Syn. Fuc., 117.

" *Balticus*, Agardh, Svensk Bot.

Bladdered fucus, sea-wrack. Rocky shores; very abundant in Eur.; found also on our shores, from Greenland to N. York. W. H. Harvey.

This sea-weed is abundantly employed in the manufactory of

kelp, if it be not the best. But this, important as it is in a commercial point of view, is not the only end it serves. In the isles of Jura and Skye, it is frequently a winter food for cattle, which regularly come down to the shores at the receding of the tide to seek for it; and sometimes even the deer have been known to descend from the mountains to the seaside to feed upon this plant. Linnaeus informs us that the inhabitants of Gothland, in Sweden, boil this fucus with water, and, mixing with it a little coarse meal or flour, feed their hogs upon it; for which reason they call the plant swintary; and in Scania, the poor cover their cottages with it, and use it for fuel. In Jura and some other Hebrides, the inhabitants dry their cheeses without salt, by covering them with the ashes of this plant, which abounds so much in that substance, that from five ounces of the ashes may be procured two and a-half of fixed alkaline salts, or half their own weight. Crypt. of Eng.

This plant is still retained by the Dublin College as officinal, and the U. S. Disp. left it out of its primary catalogue only through mistake. It has a peculiar odor, and a nauseous, saline taste. Several chemists have undertaken its analysis. It contains much soda in saline combination, and iodine, according to Gaultier de Claubry, Ann. Chim. xciii. in the state of iodide of potassium; also pectin and odorous oil. These ingredients remain in its ashes, and in the charcoal resulting from its exposure to heat in close vessels. This charcoal, which is sometimes called *Æthiops vegetabilis*, or *vegetable ethiops*, has long had the reputation of a deobstruent, and has been given in goitre and scrofulous swellings. Its virtues were formerly ascribed chiefly to the carb. of soda, in which it abounds; but since the discovery of the medical properties of iodine, this has been considered as its most active ingredient. The mucus contained in the vesicles was applied externally, with advantage, by Dr. Russell, as a resolvent in scrofulous tumors. He is of the opinion that it far exceeds burnt sponge, in virtue. Ann. de Chim. xxxv. and xxxix.; U. S. Disp. 1253; Lind., Nat. Syst. Bot. By treating the distilled water of this fucus with ether, a semi-solid, white oil is extracted, which is the odorous principle. Stackhouse, Dict. des Sc. Nat. xvii. 500; Gribourt, Dict. des Drogues, ii. 395; Pereira's Mat. Med. ii. 35; Russell's Diss. on the Use of Sea-Water, 1769, p. 41. Pliny states that this fucus was employed by the ancients in gout, and to calm inflammatory pains. Stetler says

the decoction is useful in arresting diarrhoea. Mérat & De Lens' Dict. de Mat. Méd. iii. 309; Forestus, Tract. de Venenis de Fucis, Leyde, 1606; Gmelin, Historia Fucorum, 1 vol., Petropoli, 1768; J. C. Collins, in Med. and Phys. Journal, upon the Medicinal Virtues of Marine Plants, xxxvi. 211, 1816; Dorbigni, Essai sur les plantes marines du Golfe de Gascogne (Mém. du Museum, vi. 165). If any injury is done to the leaves, abundance of young leaves spring from the injured part. "If even a small aperture be made in the middle of a leaf, a new one arises from either side of it." Withering; Wade's Pl. Rariores, 143.

Fucus nodosus, Linn. { Knotted Fucus, or Sea-Thistles.
 { Rocky shores—common; scarcely
 { found south of N. Jersey. (Harv.)

It is said, in the Hebrides, to be preferable to all other fuci in the manufacturing of kelp, and passes there under the name of *kelp-wrack*. Crypt. Eng. "Oysters are covered with it to keep them alive and moist." Wade's Pl. Rariores, 142.

Fucus canaliculatus, Linn.; Grev., Alg. Brit. 15.

Channeled Fucus. Abundant on rocks on the sea-shore; summer and autumn; not found on our coast. (Harvey.)

Capt. Carmichael states that cattle are exceedingly fond of this plant, and never fail to browse on it in winter, as soon as the tide leaves it within their reach. At this season it is peculiarly wholesome, as "counteracting the costiveness induced by their ordinary straw-commons."

Fucus amansii, Lam.

This is eaten in Madagascar.

Fucus bracteatus, Gmel.

Eaten in many parts of India with aromatics. Rumphius; Mérat & De Lens.

Fucus clathreus, Gmel.

According to Stetler, used as food in Asia.

Fucus coralloides, Poiret.

This is employed as an article of food in India. From the gelatine found in it, birds construct the nests which are so much

prized as a delicacy. See an interesting article in Mérat & De Lens' Dict. de Mat. Méd. ii. on the *Hirundo esculenta*.

Fucus dulcis, Gmel.

Used as food in Ireland and in Siberia. It is mashed up and rolled into cakes like tobacco. In the Isle of Skye, they employ the decoction as a sudorific in fevers. Mérat & De Lens' Dict. de Mat. Méd. iii. 305. This probably does not differ from *Iridaea edulis*.

Fucus tenax, Turner.

This species is very rich in gelatine. Much used in China for its extraction. Dict. des Sc. Méd. xvii. 125. Turner, sur la nouvelle espèce de Fucus,—*F. tenax*, Tourn.—qui se dissout en gelatine. Mérat & De Lens' Dict. de Mat. Méd. iii. 308.

Fucus tendo, Esp.

Mérat states that of all the fuci this is the one which has most strength, and which most deserves to be employed in making cordage. Dict. de Mat. Méd. iii. 308.

Fucus amylaceus. Ceylon Moss; Agar-Agar.

This has been introduced within a comparatively recent period into India and England, by M. Previté. It consists, according to Dr. O'Shaughnessy, of vegetable jelly, starch, ligneous fiber, gum, sulph. and mur. of soda, sulph. and phosp. of lime, wax, and iron! The decoction is an agreeable, light, and nourishing article of food. Dr. Crawford's Hist. Ind. Archipel. iii. 46; Pereira, Mat. Med. and Therap. ii. 38.

Himanthalia lorea, Lyngb. } Rocky sea-shores—frequent;
Fucus, Linn. } coast of N. A. (Agardh. Harv).
 Valued in the manufacture of kelp. Grev. Alg. Brit. xix.

Alaria esculenta, Gr. Al. B't. p. 25. { Esculent Alaria. Win-
Agarum esculentum, Borry. } ter and spring; East Am.
Fucus escul. Lightfoot, Fl. Scot. { coast as far south as Cape
 Cod. (Harvey.)

In Scotland, it is known by the name of *bladderlocks*, and is eaten both by men and cattle; the former prefer the midrib, re-

jecting the more membranaceous portion. Crypt. Eng.; Grev. *Algæ Brit.* xix.; Lind., *Nat. Syst.* Mérat states that the *F. esculentus*, L. possesses sufficient gelatine to render it highly nutritious, and that it is used in Brittany, in Gascony, and in Siberia as an article of food. *Diet. de Mat. Méd.* iii. 305; Thunberg. iv. 61.

Laminaria buccinalis.

From the researches of M. Eclon, at the Cape of Good Hope, it contains more iodine than any European Algae. Grev. *Alg. Brit.* The goitre-stick (Palo Coto), thought to be serviceable in South America, in goitre, is probably a species of this genus. Lind., *Nat. Syst.* from Grev.

<i>Laminaria saccharina</i> , Lamour.	{	Sugary Laminaria. Abun-
<i>Fucus saccharinus</i> , Linn.		dant on sea-shore on New Jersey coast. Harvey.

This well-known plant attains a length of many feet, and derives its specific name from its being, after having been steeped in fresh water and exposed to the sun, covered with a white efflorescence resembling sugar, but nauseous to the taste. It is not the "saccharine fucus" of the Icelanders, as has been generally supposed. It is said, however, to be eaten in England by the poor, boiled as a pot-herb; but I know not whether this has been asserted by anyone besides Pallas. Thunberg tells us, that in Japan it is prepared in such a manner as to be quite esculent, and that it is customary there, when presents are made, to lay upon them a slice of this fucus attached to a piece of paper folded in a curious manner, and tied with threads of gold or silver. Cattle eat it not unfrequently. Crypt. Eng. Vauquelin found in it a matter analogous to mannite. Dr. Stackhouse says it contains six per cent. Mérat & De Lens, iii. 307. Cattle are said to feed on it and get fat; but their flesh acquires a bad flavor. *Flora Scotica*, ii. 942. Mr. Stackhouse says that when dry it forms an admirable hygrometer, and preserves its quality for years. *Plantæ Rariores*, 149.

<i>Laminaria digitata</i> , Lam.	{	Tangle Sea-Girdles. Sea-shore,
<i>Fucus digitatus</i> , Linn.		as far south as Cape Cod. (Olney and Harvey.)

This, and the *L. bulbosa*, are valued in making kelp. Mrs. Grif-

fiths examined one of the latter, which measured twelve feet in diameter. Crypt. Eng. 272, and Lind., Nat. Syst. 339; see Stackhouse's analysis. The young fronds are eaten in Scotland, and also employed as a manure. Turner's British Fuci; Wade's Plantæ Rariores, 149. As manures, the coriaceous fuci are preferable to the succulent. This plant contains six per cent. of mannite.

Laminaria bulbosa, Lam. }
Fucus bulbosus, Huds. }
 " *polyschides*, Light. }

Lightfoot observes, that this fucus has sometimes grown so large that a single specimen has been a load for a man's shoulders. Drs. Goodenough and Woodard mention that it grows "to a vast size—from one to five yards." In Cornwall, it is burnt to make kelp. Flora Scotica; Obs. on British Fuci; Linn., Trans. v. 3, 155; Wade's Plantæ Rariores, 152.

Laminaria potatorum

Furnishes the inhabitants of Australia with a proportion of their "instruments, vessels, and food." Grev., Algæ. Brit. xix.; Lind., Nat. Syst.

Durvillea utilis.

It constitutes an important resource to the poor on the west coast of South America. Grev., Essai.

Sporochnus villosus, Agard. } Hairy Sporochnus. Marine
Conferva villosa, Huds. } rocks.

"Fresh specimens, when spread upon paper, render it transparent, as if it had been touched with oil; but in a short time this transparency disappears." Hassell, in Crypt. Eng.

Chorda filum, Lamour. } Common Sea Whip-Lash. Abun-
Scytosiphon, Ag. Sp. Alg. } dant on shores of England. Com-
Fucus, Linn. } mon on northern shores. Harvey.

It constitutes a part of the fodder upon which cattle are supported in Norway. Grev. Alg. Brit. xix. Also used in the manufacture of kelp. Lind., Nat. Syst. Cordage is made of it.

<i>Rhodymenia palmata</i> , Grev.	} Larger Palmated Rhodomenia, or Dulse. Abundant on rocky shores of Great Britain in winter. Boston bay and Halifax. W.H.H.
<i>Halymenia</i> " Ag. Sp. Alg. i. 204.	
<i>Delesseria</i> " Lamour.	
<i>Fucus palmatus</i> , Linn.	

This is the dulse of the Scotch, who are very fond of it in the fresh and crude state. Lightfoot says, however, that they prefer it dried and rolled up, when they chew it like tobacco, for the pleasure arising from the habit. This is the "saccharine fucus," or sol, of the Icelanders, the efflorescence of which has a sweetish and not disagreeable taste. It is dried by the natives, packed down in casks, and used as occasion requires, frequently cooked with butter. Cattle, sheep in particular, often eat this species with eagerness, whence it has been called *Fucus ovinus*. Crypt. Eng. It is also consumed in considerable quantities in the Grecian Archipelago. Grev., Algæ Britannicæ, xix.; Lind., Nat. Syst. Supposed to yield the largest quantity of kelp. Wade's Pl. Rariores, 167.

<i>Rhodomenia ciliata</i> , Grev.	} Halifax harbor. W. H. H.
<i>Fucus ciliatus</i> , Huds.	
This is eatable.	

<i>Laurencia pinnatifida</i> , Lam.	} Pinnatifid Laurencia.
<i>Chondria</i> " Alg.	
<i>Gelidium</i> " Lyngh.	
	} Rocks in the sea, <i>passim</i> .
	} Monterey, Cal. W. H. H.

Distinguished for its pungency; it is often eaten in Scotland under the name "pepper-dulse." Grev., Alg. Brit. xix.; Lind., Nat. Syst. 338.

<i>Plocamium coccineum</i> , Lyngh.	} Scarlet Plocanium; abundant on sea-coast. California. W. H. H.
<i>Fucus Plocanium</i> , Gmelin.	

Some antiquarians suppose that from this was extracted the famous Tyrian purple. Gmelin states that the young Kamtchadales employ it to make a red paint for the face. *F. lacceratus*, *palmatus*, *alatus*, *plumosus*, *rubens*, and *sanguineus*, furnish coloring matter. M. & De Lens, iii. 306.

<i>Gigartina Helminthocorton</i> , Grev.		} Helminthocorton. Corsican moss.
<i>Gracillana</i>	Bot.	
<i>Fucus</i>	Bot.	
<i>Sphærococcus</i>	Ag.	

It has some reputation in Europe as an anthelmintic ; having been used in Corsica for this purpose for several centuries. It is one of the ingredients in that mixture of marine plants which is sold in Europe under the name of *Corsican moss*, or *helminthocorton*. This is used in decoction, from four to six drachms being boiled in a pint of water, and a wine-glassful given three times a day. U. S. Disp., 1252. Eberle speaks favorably of it as a vermifuge. See Eb. on "Dis. of Children." Bouvier obtained, from one hundred parts of Corsican moss, veg. fiber and jelly, chlo. of sodium, sulph. and carb. lime, iron, manganese, silica, and phosph. of lime. Ann. de Chim., ix. 83, 1791. Gaultier de Claubry and Straub have since detected iodine, but in small quantities. Mr. Farr found the decoct., after six or seven days, to act as a diuretic and diaphoretic, occasionally producing nausea and giddiness. In 1822 he brought it forward as a remedy in cancer, being led to try it from the circumstances of Napoleon's having stated to O'Meara that it was used in Corsica for dispersing tumors. Experience does not sustain its employment. Dr. Dollhoff thinks it either has iodine or a hydriodate. M. & De L., iv. 498. It is often mixed with other crypt. plants. In powder, it is given in doses of a scruple to two drachms mixed with honey ; but the decoction is the form preferred. Pereira's Mat. Med., v. 11 ; Bremser sur les vers intestin, 414. The favorable effect of the medicine in scirrhus is indicated by the green discoloration of the stools, accompanied by a notable amount of coagulable lymph. According to Dr. Stenhouse, it contains from 1 to 5 or 6 per cent. of mannite. Harvey's "Nereis Bor. Am."

We insert the following references obtained from M. & De L., Diet. de M. Méd. Fee, Cours. d'Hist. Nat. Pharm. i. 147 ; Révue Méd. ii. 515, xi. 468 ; Sprengel, Hist. de la Méd. v. 495 ; Méd. Eclairée par les Sc. Physiques, i. 86, 1791 ; Ann. de Chim. ix. 83 ; Schwendimann, Dis. Helminth. Hist. 1780 ; Latomette, Diss. Bot. sur le Mousse de Corse, Obs. sur la Physique, xxi. 166, 1782 ; De Cand., Bull. de la Facult. de Méd. i. 125, 1824 ; Bull. de la Soc. Philom. iii. 263 ; Farr, in Med. and Surg. Rev. 1822.

Gigartina compressa, } Vera Cruz. W.
Gracillaria, " } Grev. Alg. Brit. } H. H.

Mr. Griffiths found it to be little inferior to the *G. lichenoides*, which is so much valued in Ceylon, in making pickles and preserves. Grev., Alg. Brit.; Lind., Nat. Syst. 338.

Gracillaria tenax, Grev., Alg. Brit. }
Fucus " } Turn., Hist. Fucorum. }

This species, which Mr. Greville regrets is not British, is invaluable as a glue and varnish to the Chinese. Though a small plant, the quantity annually imported at Canton, from the provinces of Fokien and Tche-kiang, is stated by Mr. Turner to be about 27,000 lbs. It is sold at Canton for 6d. or 8d. per pound, and is used for the purposes to which we apply glue and gum arabic. The Chinese employ it chiefly in the manufacture of lanterns, to strengthen or varnish paper, and sometimes to thicken or give a gloss to silks or gauze. In addition to the above account from Mr. Turner, Mr. Neil remarks that it seems probable that this is the principal ingredient in the celebrated gummy matter called cinchon, or haitsai, in China and Japan. Windows, made merely of slips of bamboo crossed diagonally, have frequently their lozenge-shaped interstices wholly filled with the transparent gluten of the Haitsai. Grev., Alg. Brit. xix.; Lind., Nat. Syst. Bot. 339. Recent travelers state that the *G. spinosa* yields the strongest cement.

Iridaea edulis, Bory. Much consumed in Scotland, and in the southwest of Eng. Grev. Alg. Brit.

Chondrus crispus, Lyngb. Grev. } Curled Chondrus. Car-
 " } *polymorphus*, Lamour. } rageen or Irish moss.—
Fucus crispus, Linn. } Rocky shores; Atlantic
 coasts, British Am. to Long Island. W. H. H. Abundant on
 North Am. coast. Harvey.

It has been extensively collected on the coast of Ireland, washed, bleached, and employed for making blanc-mange, and for other purposes, in lieu of isinglass. It was at one time sold by peasants at \$25 per pound, though now so common as to be reduced in price. Crypt. Eng. It is converted into size for the use

of house-painters. Grev., Alg. Brit.; Lind., Nat. Syst. Bot. 339. This plant was first introduced as a medicine by Mr. Todhunter, of Dublin. Reece's Monthly Gaz. of Health, 1831. And it has been analyzed by Her Verger Feuchtuanger. See Am. Journ. of Science and Arts, xxvi. It is found to contain jelly, mucus, two resins, fatty matter, and free acids, chlo. of sod., calcium, &c. no bromine, iodine, fungic, boletic, or lichenic acids.

It is a popular remedy for pulmonary complaints, chronic diarrhœa, and dysentery, irritation of bladder, etc.: a decoction is made. See Pereira's Mat. Med. ii. 36; Richard, Elems. d'Hist. Mat. Med. ii. 6.

<i>Porphyra laciniata</i> , Ag.	$\left\{ \begin{array}{l} \text{Lacinated purple} \\ \text{laver. In the sea,} \\ \text{on rocks, stones,} \\ \text{and wood.} \end{array} \right.$
<i>Alga</i> " Lightf. Scot. 974 t. 33.	
<i>Ulea umbilicalis</i> , E. Bot. 2296.	

This, under the name of *Laver*, is much eaten in many places, especially in the south of England, pickled with salt, and preserved in jars, and when brought to table, served up with lemon juice. According to Lightfoot, the inhabitants in the Western Isles gather it in the month of March, and after pounding and macerating it with a little water, eat it with pepper, vinegar, and butter. Others stew it with leeks and onions. Crypt. Eng.

Porphyra vulgaris. This also is "stewed and brought to our tables as a luxury." Grev., Algæ Brit. xix.; Lind., Nat Syst.

<i>Chondrus Membranifolius</i> , Grev. }	$\left. \begin{array}{l} \\ \end{array} \right\}$
<i>Sphæricoccus</i> " Ag. }	

This also contains a large proportion of the nutritive matter of *C. Crisp*. Richard, Elems. d'Hist. Nat. ii. 9.

Chondrus Pinnatifida.

This species is eatable. Richard.

<i>Phyllophora rubens</i> , Grev. }	$\left. \begin{array}{l} \\ \end{array} \right\}$
<i>Sphæricoccus</i> " Ag. }	

Contains gelatine and nutritive matter. Richard, Elems.

Gelidium.

In Asia, several species are made use of to "render more pal-

atable the hot and biting condiments of the East." Some undetermined species of this genus also furnish the materials of which the edible swallow-nests are composed. It is remarked by Lamouroux, that three species of swallows construct edible nests, two of which builds at a distance from the sea-coast, and uses the seaweed only as a cement for other matters. The nests of the third are consequently most esteemed, and sold for their weight in gold. Greville, *Algæ Britannicæ*, xix. Lind., *Nat. Syst.*

<i>Iridaea edulis</i> ,	Bory.	} Esculent Iridaea.
<i>Fucus</i>	Stach.	
<i>Ulea</i>	De Cand.	

"It is eatable when raw, which is hardly the case with some other fuci. It is also eaten after being pinched with hot irons, and then tastes like roasted oysters." (Quoted in *Plantæ Rariores*, 154.) In the islands of the Archipelago, the natives have a curious way of dressing fish with the fucus: "They take slices of fish, and stew them with crow garlic, chopped small; when tender, some lard, or any animal fat, is added; and lastly, a handful or more of this fucus, called by them *Marvei*, is put on, which not only gives a most beautiful purple tinge to the ragout, but dissolves, and thickens the sauce so much, that, when cold, the jelly is strong enough to support a spoon or any other thing placed in a perpendicular direction." Gmelin's *Hist. Fuc.* 190; *Nereis Britan.* 59. Mr. Stackhouse discovered that by maceration in water it gave out a rich ruby tint, "resembling the strongest infusion of cochineal." The color had also the remarkable property of being a changeable color, as "it appeared a bright ruby when held to the light, and a muddy saffron when viewed in a contrary direction." The Rev. Mr. Gregor assured Mr. Turner that by means of alum he procured a fine lake from an infusion of it. *Nereis Britan.* 58. When moistened, after having been dried, this species of fucus more particularly exhales a violet scent. Withering's *Eng. Botany*, v. 19, 1307; Wade's *Plantæ Rariores*, 155.

Ula lactuca, L.

Much eaten by Northern people, after having extracted the salt.

The same use is made of the *U. compressa*, *plicata*, *purpurea*,

umbilicalis, etc. (Journal de Pharm. xi. 40.) M. & De Lens, vi. 803.

<i>Ula latissima</i> , Linn. Suec.	{	Broad green laver.
<i>U. lactuca</i> <i>va. latissima</i> , Lightf.		Abundant on rocks,
		stones, etc. in the sea.
		Summer and autumn.

This and the *U. lactuca* are indiscriminately eaten, under the name of *green Laver*, or *oyster green*, being served at table with lemon juice, in the same way as the *purple Laver*. "This diet is esteemed good, as almost all esculent vegetables are, for scrofulous habits." Lightfoot says, that the islanders ascribe to it an anodyne virtue, and bind it about the forehead and temples to assuage headache in fevers, and to procure sleep. Crypt. Eng.; Grev. Alg. Brit.

<i>Enteromorpha intestinalis</i> , Link.	{
<i>Ula</i> , Linn.	

According to Pallas (Voyage), this is employed in medicine.

ALGÆ. (*Confervoidæ*.)

<i>Dasya coccinea</i> , Ag.	{
<i>Conferva</i> " Wade's Pl. Rariores.	

On account of its beauty, brilliant red color, and the minute divisions of its foliage, the *conferva* is employed by ladies to mimic landscapes. Wade, 168.

<i>Polysiphonia atrorubescens</i> , Grev.	{	Long Branch, N.
<i>Hutchinsia</i> " Ag. Sp. Alg.		Jersey, Miss Morris (W. II. II).—
		Found on shores of England.

M. Guibourt says it contains a notable quantity of iodurine, combined with a proper substance, but not as an alkaline ioduret. It forms the base of the remedy so much used in goitre, and known as the Powder of Sency. Richard, Elems. d'Hist. Nat. Médicale, ii. 6.

<i>Griffithsia setacea</i> , Ag.	{
<i>Conferva</i> , Dill.	

Mrs. Griffiths has observed, that on immersion in fresh water, "it twists the skin, bursts with a slight explosion, and emits the coloring matter, which sinks in fine powder." Miss Biddulph has

and dried, would answer as tow or cotton for a variety of purposes. Lightfoot, in 1777, states that he saw in Edinburgh a coarse kind of paper made of it. Wade's Pl. Rariores, 163.

Corallina officinalis, L. Halifax. W. H. II.

The discovery of the spores in this plant do not allow us any longer to doubt respecting its vegetable nature (Richard). By analysis of M. Bouvier, in Ann. de Chim. viii. 308, it was found to contain a notable quantity of gelatine and of albumen, and a very large proportion of carb. of lime, of magnesia, of sulph. of lime, and hydrochlorate of soda. The taste is disagreeable. It is sometimes prescribed as an anthelmintic. Richard, Elms. d'Hist. Nat. Médicale, ii. 9; Ann. de Nat. 1842; Ant. 119.

Calothrix luteola, Grev. Opaque Parasitical Calothrix.

Filaments exceedingly slender, tortuous, and tapering, of a snow-white color, and so opaque as to appear intensely black when viewed against the light. Most of them are variegated with pellucid fasciæ, caused by the destruction or escape of the coloring matter. In the water, this minute parasite gives a downy appearance to the plants on which it grows. Carm. MSS. Crypt. Eng.

Calothrix nigra, Ag. { White Calothrix. In sulphur springs;
hot sulphur springs near Niagara. Har.

Dr. Dillon assures us "that this species is found below the spring no further than as the water retains sensible sulphureous qualities, as if the hepatic gas was necessary to its production and nourishment." Dill. Crypt. Eng.

Oscillatoria, Vauch.

Dr. Hooper cites Capt. Carmichael's ingenious remarks in his "Algæ Alpinensis," under *Oscillatoria*. "I have been induced to bestow considerable attention to the species which fell under my notice, on account of the singular motion remarked in the filaments by various naturalists; and I do confess that the result is something like conviction that they belong rather to the animal than to the vegetable kingdom. The motion or oscillation has been attributed to various causes—to the rapidity of growth, to the action of light, or to the agitation of the water in which

ALGÆ. (*Gloiocladeæ*.)

Rivularia angulosa, Roth. } Attached to water-plants in
Ulva pruniformis, Linn. } ponds.

Pallas states, that in Siberia it is used in swellings of the limbs and in diseases of the eye. M. & De L.

Protococcus nivalis, Ag. Grev. Crypt. Flo. }
Hæmatococcus Grevillii. } Crimson Pro-
Uredo nivalis, Bauer. } tocococcus, or red
Palmella nivalis, Hook, in Paris' 2d Voy. } snow. In North
} America.

"On calcareous rocks, within the reach of occasional inundation," near Dublin. W. H. Harvey.

"This curious little plant, which, under the name of red snow, has excited no inconsiderable interest among the greatest botanists of the age, is usually found in this country under the form of a thin, stain-like stratum on the surface of rocks, or investing decayed vegetable substances with a purple crust. It was brought by Capt. Ross from the Arctic regions, where it was observed covering the surface of the snow, in patches of many miles in extent, and penetrating in some places to the depth of twelve feet." Crypt. Eng.

Seen by Mr. Agassiz on the glaciers of the Alps.

Palmella montana, Ag. Syst. }
Ulva " Lightf. } Mountain
Palmella alpicola, Lyngb. Hydroph. Dan. 69. } palmella.

According to Lightfoot, this is the "*Mountain Dulse*" of the Scotch; and "the Highlanders wash it and rub it between their hands in water, so as to make a paste, with which they purge their calves." Crypt. Eng.

Nostoch commune, Vauch. }
Tremella nostoch, Linn. } Common in gravelly soils.

This remarkable production, we are told, is a gelatinous matter of a yellowish green color, enveloped in a membrane, traversed by filaments, and springing up suddenly in wet weather. It loses its volume when dried, but may be made to recover it by the re-application of water, resuming also its gelatiform aspect. The alchemists, Mérat & De Lens inform us, have written reveries without number concerning this singular production. Some

regarded it as an emanation, a residue left by the stars, and have attributed to it miraculous virtues, among others, a power in it to transmute metals to gold. They describe it under the names, *Thron of the Earth, Fleur de Soleil* and *Jaculum Stellar, Realgar de l'Air*, etc. Mérat, in his *Diet. de M. Méd.*, refers the curious to a paper by M. Vallot in the first volume of the *Mém. de la Société Linneenne de Paris*, p. 473. By chemical analyses, Vauquelin and Braconnot say that it contains, of water 185.00; of matter analogous to bassorine (cérasine) 13.80; of mucus, 1.20. By distillation it affords, a brown oil; an alkaline liquor, which holds the acetate and carbonate of ammonia; the incinerated residue gave phosphate and carbonate of lime. (*Ann. de Chim.* lxxxvii. 265, and xxxiv. 190.)

With respect to the medicinal virtues of the nostoeh, according to Magnot it was much lauded during the end of the seventeenth century; if we believe the alchemist, it was supposed to cure all diseases. Paracelsus carried it in the head of his cane; yet he died in his 34th year. It was employed as a remedy for sores, for the most inveterate fistulæ, and to calm the pains of colic; also for cough, and in diseases of the kidney. In Siberia, it was used in inflammations, particularly those of the eye, swelling of the feet, &c. Mérat & De L., *Diet. de M. M.* iv. 636; Geoffroi, *Obs. sur le Nostoch de Paracelse, qui prouvent que c'est réellement une plante* (*Mém. de l'Acad. des Sc.* 1708); Reaumer, *Obs. sur la Reg. du Nost.* (*Mém. de l'Acad. des Sc.* 1722); Vernig, *Mém. sur le Nost.* (*Nouv. Mém. de l'Acad. de Dijon*, 1784); Corti, *Obs. sur la plante appelée Tremella* (*Obs. sur la Phys.* vii. 78, et *Mém. de la Soc. d'Emulat.* v. 515); Fontana, *Lettres sur la Trem.* (*Obs. sur la Phys.* vii. 328); Carradori, *Mem. sulle trasformazione del Nost.*, Florence, 1798 (*Journ. de la Lit. Etrang.* i. 242); Cassini, *Doutes sur l'origine du Tremella, Nost.* L. (*Bull. de la Soc. Philomath.* v. 81, 1817). See M. & De L.; Wade's *Plantæ Rariores*, 142; Smith's *Tour on the Continent*, v. 3, 150; Withering's *Eng. Botany*, v. 7, 461; *Flora Scotica*, v. 2, 199.

ALGÆ (*diatomaceæ*).

Schizonema Dillwynii, Ag. Syst.

The plant has a fetid odor, and frequently glistens with a faint metallic luster when dry. *Crypt. Eng.*

ORDER III. FUNGI (*The Mushroom Tribe*)

Plants consisting of *cells* and *fibers*, “always springing from organized and, generally, decaying substances, not perfected when immersed in water, bearing reproductive sporidia.” Fungi occur of all colors, except pure green.

“Their qualities,” remarks Mr. Berkeley, “are various; many are used very extensively as articles of food; a few are endowed with valuable medicinal properties; numbers are highly poisonous; and the ravages of several in dock-yards, corn-fields, orchards, &c. are incalculable. A few possess the remarkable property of exhaling hydrogen gas. Some, however, exhale carbonic acid gas, and inhale oxygen.” Fries discovered 2,000 species within the compass of a square furlong, in Sweden.

Mr. Berkley, in his valuable description, says of the properties of this important order, that—“In this country (England) *Fungi* are so generally objects of prejudice and disgust, that their real importance, as useful productions, is little appreciated. With the exception of the common *mushroom*, scarcely a single species of *agaric* is in general accurately distinguished; and though many speak of another kind, under the name of *champignon*, there are few persons who know what to gather; and the fatal mistakes which have in consequence been made, have increased the disinclination to any but the *mushroom*. In many portions of Europe, but especially Poland and Russia, they form a most important part of the food of the common people; and in the latter country whole tribes are mainly supported by them, scarcely any species, except the dung and the fly *agarics*, being rejected. Even those kinds which are elsewhere refused by common consent, as poisonous on account of their extreme acidity, are taken with impunity, being extensively dried or pickled in salt or vinegar for winter use. It is probable that this harmlessness arises from the particular mode of preparation; for from the exact account of Pallas, and the general diffusion of various species in various countries, there is no reason to doubt the fact that sorts *justly esteemed poisonous are really used*; and it is well known that the noxious qualities of that most virulent species, *Agaricus vernus*, are communicated to brine, vinegar, &c., and that the *Olive-tree agaric* loses all its poisonous properties when salted, and becomes eatable. The pickle is, probably, in general thrown away; while as to dried fungi, I have been informed by a gentlemen of great acuteness and obser-

vation, that in some town of Poland, where he was detained as a prisoner, he amused himself with collecting and drying the various fungi which grew within its walls, amongst which were many commonly reputed dangerous; and that, to his great surprise, his whole collection was devoured by the soldiers. Indeed, two poisonous principles have been discovered in fungi, one of which is so fugacious that it is dispelled by heat, or the act of drying, or by immersion in acids, alkalies, or alcohol; the other is more fixed, and resists such processes. It is, however, the practice in some districts, to use *fungi* without any preparation whatever, as in their simple state they are considered more wholesome and nutritious. This practice is probably confined to kinds allied in their qualities to *Agaricus campestris*, and Schwaegrichen assures us, in a letter quoted by Person, that in consequence of seeing the peasants about Nuremberg eating raw *mushrooms*, seasoned with anise and carraway-seed, along with their black bread, he resolved to try their effect himself; and that during several weeks he ate nothing but bread and raw fungi, as *Boletus edulis*, *Agaricus campestris*, *Agaricus procerus*, &c., and drank nothing but water, when instead of finding his health affected, he rather experienced an increase of strength. A few species are recorded as used in the Southern hemisphere, and a kind of *Pachyma* is known in Van Diemen's Land by the name of "*native bread*."

The medical uses of *fungi*, are probably of far greater importance than their present very limited application might lead us to suppose. Several which were formerly in high reputation for their active properties, are now altogether neglected or forgotten.

In the economy of the world, *Fungi* perform a most important office, in hastening the decomposition of dead organized matter. It is this property which renders one or two species, known under the common name of *dry rot*, such a dreadful plague in ships and buildings. The disease doubtless originates on some unsound portion of the wood, but, once established, it spreads with wonderful rapidity and decomposes the sound wood beneath it by absorbing its nutritive matter.

White of egg might probably be used to advantage, on a small scale as it seems, equally with corrosive sublimate, to prevent the growth of *fungi*; indeed, it is sometimes employed by housekeepers for the prevention of mold, by simply covering the articles to be preserved with paper steeped in it. In herbaria and

cabinets, moldiness may be kept away by the use of essential oil or Russia leather.

Fungi are very destructive to corn, in the form of *blight*, *mildew*, *bunt*, &c., doing injury not only by a diminution of the quantity, but also of the nutritive matter; and, as in the case of bunt, by communicating to the corn an offensive taste and smell. The growth of these parasites depends so much upon accidental circumstances, that it is impossible for the most experienced cultivators to guard against them altogether; but the evil is greatly lessened by careful choice of seed, by steeping it in solutions of different substances, which destroy the vegetative power of the *sporidea* of these parasites, and by a judicious change of cropping in the land subject to them. It appears that the reproductive contents of the sporidea are absorbed, together with the water containing the nutritive matter of the soil, by the roots. At least, it is certain that corn sown in soil which has been purposely mixed with the sporidea, is infested with the fungi to which those sporidea belong; and this has been proved also with regard to one of the entophytal parasites to which roses are subject. Most plants are preyed upon by their peculiar parasites; pear-trees, for instance, are sometimes much injured by *Æcidium cancellatum*, and young trees planted in their neighborhood are observed to suffer.

The roots of certain plants, as *Saffron-crocus*, *Lucerne*, *Convolvulus batatus* (potato), are frequently exhausted by subterranean fungi. In the case of saffron, the only remedy is to insulate the infected spot by a deep trench; which should seem to be a striking proof that these plants are really increased by seed. M. J. Berkeley on Fungi, in "Crypt. of England." We refer the reader to Kotzsch's excellent method of preserving fungi, on p. 10, vol. ii. which Sir Wm. Hooker has found very serviceable. Crypt. Eng.

According to Braconnot, most of the fungi contain a peculiar principle denominated *fungin*, a peculiar acid called *fungic acid* usually combined with potassa, and a peculiar saccharine matter less sweet than the other varieties of sugar, less soluble in alcohol and water than that of the cane, and distinguished by some writers as the *sugar of mushrooms*. *Fungin* constitutes the basis of these vegetables, and is the principle upon which their nutritive properties chiefly depend. It is the fleshy substance which remains when they are treated with boiling water, holding a little alkali in solution. It is whitish, soft, and insipid; inflammable;

insoluble in water, alcohol, ether, weak sulphuric acid, and weak solutions of potassa and soda; soluble in heated muriatic acid; decomposed by nitric acid, and by concentrated alkaline solutions; and converted, by destructive distillation, into substances resembling those which result from the distillation of animal matters. This subject was afterwards resumed by Letellier, who says he found in some of them one, in others two poisonous principles. One of these is an acrid matter, so fugacious that it disappears when the plant is either dried or boiled, or macerated in weak acids, alkalies, or alcohol. To this principle, he says, is owing the irritant properties of some fungi. The other principle is more fixed, as it resists drying, boiling, and the action of weak alkalies and acids. It is soluble in water, has neither smell nor taste, and forms crystallizable salts with acids; but he did not succeed in separating it in a state of purity. To this principle he attributes the narcotic properties of the fungi. He found it in *Am. muscaria*, *bulbosa*, and *verna*; and he therefore proposed to call it amanatine. Its effects on animals appear to resemble, considerably those of opium. Archiv. Gén. de Méd. xi. 94. Chausard found that the poisonous principle resides in the juice, and not in the fleshy part, after it is well washed. Repert. für die Pharmacie, lxvi. 117; Christison on Poisons, p. 704.

The mode of action of the poisonous fungi has not been particularly examined; but the experiments of Paulet long ago established that they are poisonous to animals as well as to man. Traité des Champig. Coëffes. Mém. de la Soc. de Roy. de Méd. i. 431. The toxic or active principle, according to Mialhe, depends upon their power to coagulate the albumen of the blood, and hence to arrest the circulation. Mialhe, Essai sur l'Art de Formuler, cccxix.; Suppl. 1846, to Diet. de M. Méd. 161. The symptoms produced by them in man are endless in variety, and fully substantiate the propriety of arranging them in the class of narcotico-acrid poisons. Sometimes they produce narcotic symptoms alone, sometimes only symptoms of irritation, but much more commonly both together. See *Agaricus campanulatus*, *A. procureus*, and *A. pantherinus*; also, *Hypophyllum sanguineum*. It is likewise not improbable that fungi, even those not belonging to the varieties commonly acknowledged as poisons, induce, when taken for a considerable length of time, a peculiar depraved state of the constitution, leading to external suppuration and gangrene. Christison on Poisons, p. 704.

Even the esculent mushrooms, if partially devoured and abandoned by insects, are avoided by some as having, in all probability, acquired injurious qualities which they do not usually possess; but this test I have often disregarded, remarks Christison ("On Poisons," p. 704). In cases of poisoning with the fungi, there is a great difference in the interval which elapses before the symptoms begin. Sometimes they commence in a few minutes, sometimes an interval of twelve hours has occurred. Gmelin has quoted a set of cases, seventeen in number, in which it was said to have been a day and a half. Their indigestibility, to which this has been attributed, is sometimes so great, that portions of them have been discharged by vomiting so late as fifty-two hours after they were swallowed. Aymen, in *Hist. de la Soc. Roy. de Méd.* i. 344. Another circumstance worthy of particular notice is the great durability of the symptoms. Even the purely narcotic effects have been known to last above two days; the symptoms of irritation have continued, as in the instance quoted from Orfila, about three weeks. Through idiosyncrasy, some persons have been affected by the small portion of mushroom juice which is contained in an ordinary catsup seasoning. Christison.

In Rust's Journal, we have cases of persons having their systems depraved by living exclusively on mushrooms; a botanist, of Person's acquaintance, while studying the cryptogamous plants in the vicinity of Nuremberg, says he found that the peasants ate them raw, in large quantity, as their daily food: in imitation of their custom, he ate, for several weeks, nothing but bread and raw mushrooms—enjoying all the while perfect health. Person, *Traité sur les Champ. Comestibles*, 157.

The morbid appearances left in the bodies of persons poisoned by the deleterious fungi, have been but imperfectly collected. Christison details for us a few of these: The body is in general very livid, and the blood fluid; so much so, sometimes, that it flows from the natural openings in the dead body. Picco, *Hist. de la Soc.* p. 357. In general, the abdomen is distended with fetid air, which, indeed, is usually present during life. The stomach and intestines of some French soldiers who died of it (see *Ag. muscarius*) presented the appearance of inflammation, passing in some places to gangrene. In two of them the stomach was gangrenous in many places, and far advanced in putrefaction. The same appearances were found in the cases mentioned by Picco: in these there was also an excessive enlargement of the liver. The

lungs have sometimes been found gorged or even inflamed. The vessels of the brain are also sometimes very turgid. They were particularly so in a case related by Dr. Beck, where death was occasioned in seven hours by an infusion of the *Ag. muscaria* in milk. See *Ag. Muscaria*, apud auct. cit. sup.

M. Orfila, by experiments on dogs, found vinegar so efficient in dissolving out the active properties of some fungi as that they could be rendered innocuous by being dissolved in it. If, however, vinegar is swallowed together with portions of fungi, their poisonous influence is much increased. The common salt and sulphuric ether were all serviceable after the use of evacuants. Hoffman's anodyne was also very efficient. An emeto-cathartic should always be administered. The following prescription is advised:

R. Ant. Tartarizat. grs. iii.
Ipecac. grs. xxiv.
Sulph. sodæ, grs. vi.

This to be followed by oil, and subsequently by ether. Milk has likewise been recommended.

M. Duchamoit thinks that among poisonous fungi, one kind act by stupefying, and the other by causing excessive pain. The use of the *Am. pseudo-aurantiaca* being followed by the first, and that of the *A. bulbosus* by the second. M. & De Lens' Diet. de M. M. ii. 202; Journ de Leroux, xvi. 376.

At Turin they cook mushrooms by adding iron, one or more nails being boiled with them (elous dans l'eau de cuisson); and we are assured that by these means no one is poisoned (Bonafons). M. Druge, of Vienna, recommends, for the poisoning by the mushrooms, a mixture of olive oil and pulverized charcoal. Bull. des Sc.Méd. de Feruss. xxiv. 97. M. Chansarel, of Bordeaux, states that tannin will deprive bad mushrooms of their poisonous power. Rev. Méd., Juin, 1839.

Some have observed certain agarics as peculiarly noxious to animals; also, that the poisonous properties change with the localities. For instance, in the middle of Europe many species are eaten; at Paris, the moselle and another species is eaten; in Perigord and Gascony, le cesse et l'orange are among the number of those employed; at Montpellier we may add four or five more, according to De Candolle; in Italy, Micheli states, they use as articles of food a great number. It has been remarked, that as we go north the poisoning by the mushroom becomes more fre-

quent, especially by the *amanita verna* (l'orange cigue), this being more abundant as we pass to colder regions. Mérat & De L., Supplém. vol. 1846, 162.

There are rules laid down by M. Richard, in the *Diet. des Drogues*, to guide those who eat mushrooms, in their selection of them. Those should be rejected which have a narcotic or fetid odor, or an acrid, bitter, or very acid taste; which occasion a sense of constriction in the throat, when swallowed; which are very soft, liquefying, changing color, and assuming a bluish tint upon being bruised; which exude a milky, acrid, and styptic juice; which grow in very moist places and upon putrifying substances; in fine, all such as have a coriaceous, ligneous, or corky consistence. The last, however, are injurious, in consequence rather of their indigestible than of their poisonous nature. Even mushrooms which are usually edible, may prove poisonous, if collected too late, or in places which are too moist. It is said, moreover, that the poisonous species sometimes become innocent when they grow under favorable circumstances; and that the most noxious may be rendered edible by boiling them in water acidulated with vinegar. Paulet, in 1776, says that salt and vinegar removed every deleterious principle from that poisonous species, the *Ag. bulbosus*; and that the Russians are in the habit of salting their fungi, which may be the cause of their harmlessness. So, the pickling and subsequent washing of the poisonous agaric of the olive renders it eatable, in the Cevennes. Delile; Lind., *Nat. Syst.* Both Pallas (*Voyage*, i. 65) and Orfila assure us that vinegar will destroy the noxious power of the most dangerous. *Toxicologie*, ii. 89. Mérat states that in many provinces of France, in portions of Europe, and particularly in Siberia, the inhabitants live almost exclusively on fungi. The plants, dried for winter use, become articles of considerable commercial importance. The remedies for poisoning by eating mushrooms are emetics, accompanied by the free use of warm drinks, and followed by cathartics. The strength must then be sustained by mild tonics and stimulants. Ether is particularly recommended. *U. S. Disp.* 1277; Mérat & De Lens. Chansarel found acids useless as a remedy, but he thought infusion of galls advantageous. *Repert. für. die Pharmacie*, lxvi. 117; Christison on Poisons; Lyall's *Character of Russians*, 556. 1823; Letellier, *Journ. de Pharm.* 1837; see art. of Mérat & De L. p. 201, vol. ii. for the chief characters of deleterious fungi.

“On certain persons, all mushrooms, even the very best of the eatable kinds, act more or less injuriously.” They cause vomiting, diarrhoea, and colic. In this respect they are on the same footing with the richer sorts of fish, which, by idiosyncrasy, act as poisons on particular constitutions. It is not improbable, Dr. Christison states, that, contrary to what some botanists have alleged, “the best mushrooms, when taken in large quantity and for a considerable length of time, are deleterious to every one.” On Poisons, p. 703.

Foderé (*Méd. Légale*, iv. 55, *et passim*), De Candolle (*Essai sur les propriétés Méd. des Plantes*, 320), and Greville (Mem. Werner. Soc. iv. 342), have laid down general directions for distinguishing the esculent from the poisonous varieties; but it is extremely questionable, adds Christison, whether their rules are always safe; and that certainly they are not always accurate, as they would exclude many species in common use on the continent. “It appears that most fungi which have a warty cap, more especially fragments of a membrane adhering to their upper surfaces, are poisonous.” Heavy fungi, which have an unpleasant odor, especially if they emerge from a *vulva*, or bag, are also generally hurtful. Of those which grow in woods and shady places a few are esculent, but most are unwholesome; and if moist on the surface, they should be avoided. All those which grow in tufts or clusters, from the trunks or stumps of trees, ought likewise to be shunned. “A sure test of poisonous fungi, is an astringent, styptic taste; and, perhaps, also a disagreeable, certainly a pungent, odor.” Some fungi possessing these properties have, indeed, found their way to the epicure’s table; but they are of a very questionable quality. Those whose substance become blue are invariably poisonous. Agarics of orange or rose-red color, and boleti which are coriaceous or corky, or which have a membranous collar round the stem, are also unsafe; but these rules are not universally applicable in other genera.

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Agaricus phalloides, Fr.

“ *bulbosus*, Bull. ii. 577.

“ *vernalis*, Bolt. i. 48.

“ *muscarius*, Sow.

Fungus phalloides, Vaill. Bot. Par. 74. } Carolina! to Penn.

Phallus-Like Agaric. Woods, and borders of woods; August to November;

When fresh it has a powerful, but not disagreeable smell; when past maturity, its odor becomes almost insupportable. Accounted highly poisonous, especially the yellow variety. Orfila administered portions of the *A. bulbosus* of Bull. to a dog. In six hours, it made efforts to vomit, became extremely weak, laid down and died with convulsive movement. Upon post-mortem

examination, the stomach was found full of a thick, yellow mucus. This organ and the duodenum, had livid spots on their coats. In a second experiment, two of the *A. bulbosus*, Bull. were given to a dog. These produced vomiting, trembling, and convulsive movements, accompanied with severe pain. In fact, all the symptoms of apoplexy declared themselves. The administration of vinegar did not relieve it permanently, and it died in thirty hours after the introduction of the poison. The digestive canal did not contain any of the plant, but the interior of the stomach was touched with red spots, the mucus and muscular coats of the intestinal canal were destroyed, and nothing remained except the serous tunic. A half-ounce being given to another dog produced true cholera and convulsions: the animal died twenty-four hours after taking the poison. The strong liquid produced by distillation of the plant, also destroyed dogs to which it was administered. The watery extract produced death in less than twenty-four hours. The tincture made by placing one plant in $\frac{5}{8}$ iss. of alcohol, was, likewise, equally destructive. See Paulet, *Traité des Champignons* (Trans. from Orfila).

In this, one of the most dangerous of the fungi, M. Vaquelin found a yellow, soft, fatty matter, acrid to the taste, in which appeared to preside the poisonous principle. *Annal. de Chim.* xxxv. 33, lxxv. 5, and lxxix. 265. Exposed to intense heat, it did not give out oxygen as other vegetables do, but azote and hydrogen; “thus confirming the almost animal nature of this species of production.” M. & De L., *Diet. de Mat. Méd.* ii. 204.

<i>Agaricus vaginatus</i> , Bull.	} Sheathed Agaric. Woods and	
“ <i>pulvinatus</i> , Bolt.		} pastures; August to October;
“ <i>plumbicus</i> , With.		

Eaten in Russia, but according to some accounts, poisonous. “The very base solid; not acrid, insipid; smell, scarcely any.” Roques mentions, upon the authority of Decandolle, the two synonyms as including two varieties, which are very delicate, and which may be eaten with impunity. *Hist. des Champs. Vén.* 359. The same author says the *A. plumbicus*, Bull. is poisonous. *Hist. des Champs.* 199.

<i>Agaricus ovoides</i> , D. C. Fl. Fr. Supplem. 562.	}
<i>Coccolia Bianca</i> , Mich., Gen. Pl. 185.	

This, and the *A. caesareus*, “appear to be the best of all the esculent agarics.” The flesh is white, and it has a fine, delicate

taste. It should be carefully distinguished from the poisonous amanita, which has the same color; but the latter is more pointed, slender, and it has a disagreeable, virulent odor. Roques.

Agaricus theiogallus, Bull.; Pers., Syn. } Penn., S. C. !
Lacturius " Fr. }

This was analyzed by Vanquelin, and found to contain constituents similar to those of *A. muscarius*, and is equally poisonous. It is saturated with a yellow and bitter juice.

Agaricus muscarius, L., Fl. Suec. } Fly Agaric, Aman-
Amanita muscaria, Grev., S. C. Fl. 54. } ita. " Woods, espe-
 cially of fir and }
 birch. }

Sent to me from St. John's, S. C. by my friend, H. W. Ravenel, Esq.

This species derives its name from its killing flies, when dissolved in milk. It is highly narcotic, producing in small doses intoxication and delirium, for which purpose it is used in Kamtschatka; and in larger, death. Crypt. Eng. For a detailed account of its poisonous effects, see Roques' Hist. des Champs. p. 123; and for some curious particulars, a paper by Dr. Greville, in the 4th vol. *Wernerian Trans.*; also, this paper, *ante*, in introduction to the "Fungi." From the account of Dr. Langsdorff, as translated by Dr. Greville, it appears that the inhabitants of the northeastern part of Asia use this variety in the same manner as wine, brandy, arrack, opium, etc. are by other nations. They are collected in the hottest months, and hung up in the air by a string to dry; some dry of themselves on the ground, and are far more narcotic. The usual mode of taking the fungus is to roll it up like a bolus, and swallow it without chewing; which, the Kamtschatdales say, would disorder the stomach. It is sometimes eaten fresh, in soups and sauces, and then loses much of its intoxicating property. When steeped in the juice of the *Vaccinium uliginosum*, its effects are those of strong wine. One large or two small fungi is a common dose, to produce a pleasant intoxication for a whole day, particularly if water be drunk after it, which augments the narcotic principle. The desired effect comes on from one to two hours after taking the fungus. Giddiness and drunkenness result in the same manner as from

wine or spirits: cheerful emotions of the mind are first produced, involuntary words and actions follow, and sometimes, at last, an entire loss of consciousness. It renders some remarkably active, and proves highly stimulant to muscular exertion; by too large a dose, violent spasmodic effects are produced. So very exciting to the nervous system, in many individuals, is this fungus, that the effects are often very ludicrous: a person under its influence wishing to step over a straw, takes a stride or a jump sufficient to clear the trunk of a tree; a talkative person cannot keep silence or secrets; and one fond of music is perpetually singing. The most singular effect of the *amanita*, is the influence it possesses over the urine. It is said that from time immemorial the inhabitants have known that the fungus imparts an intoxicating quality to that secretion, which continues for a considerable time after taking it. For instance, a man moderately intoxicated to-day, will, by the next morning, have slept himself sober; but (as is the custom) by taking a tea-cupful of his urine, he will be more powerfully intoxicated than he was the preceding day. It is, therefore, not uncommon for confirmed drunkards to preserve their urine as a precious liquor, against a scarcity of the fungus. This intoxicating property of the urine is capable of being propagated; for every one who partakes of it has his urine similarly affected. Thus, with a very few *amanitæ*, a party of drunkards may keep up their debauch for a week. Dr. Langsdorff mentions, that by means of the second person taking the urine of the first, the third that of the second, and so on, the intoxication may be propagated through five individuals. Greville, 4th vol. Trans. Wernerian Soc. Edinb.; Lind., Nat. Syst. Bot.; Bongard, Lond. Med. Gazette, 1838, 414. Dr. Pouchet, of Rouen, seems to have clearly proved that the poisonous property of this and the *A. renouata*, "may be entirely removed by boiling them in water." A quart of water in which five plants had been boiled for fifteen minutes, killed a dog in eight hours; and again, another in a day; but the boiled fungi themselves had no effect at all on two other dogs; and a third, which had been fed for two months on little else than boiled *amanitas*, not only sustained no harm, but actually got fat on the fare (Journ. de Chim. Méd. 1839, 322). Pouchet is inclined to think that the whole poisonous plants of the family are similarly circumstanced. Roasting, we may add, had no effect in impairing the activity of the *Agaricus procerus* in the case observed by Dr.

Peddie. M. Letellier detected what he considers the poisonous principle in this, and in the *A. verna* and *bulbosa*; and he therefore calls it Amanatine. "Its effects on animals appear to resemble considerably those of opium" (Archives Gén. de Méd. xi. 94). Chansarel found that the poisonous principle resided in the juice, and not in the fleshy part after it is well washed. Several French soldiers in Russia eat a large quantity of the *A. muscaria*, which they had mistaken for *A. caesarea*. Some were not taken ill for six hours and upwards. Four of them, who were very powerful men, thought themselves safe, because, while their companions were already suffering, they themselves felt perfectly well; and they refused to take emetics. In the evening, however, they began to complain of anxiety, a sense of suffocation, frequent fainting, burning thirst, and violent gripes. The pulse became small and irregular, and the body bedewed with cold sweat; the lineaments of the countenance were singularly changed, the nose and lips acquiring a violet tint; they trembled much; the body swelled; and a profuse, fetid diarrhœa supervened. The extremities soon became livid, and the pain of the abdomen intense; delirium ensued; and all four died (Courv., Journ. de Méd. xxxi. 323, from Vaudrot, Diss. Inaug. sur l'Empois. par les Champ). Several of their comrades were severely affected, but recovered. Two of these had weak pulse, tense and painful belly, partial cold sweats, fetid breath and stools. In the afternoon they became delirious, then comatose; and the coma lasted twenty-four hours. Christison, in citing these cases, remarks that the symptoms "deep narcotism and violent irritation," are more generally observed in cases of poisoning by the fungi. In a case related by Dr. Beck, where death was occasioned in seven hours by an infusion of the *Am. muscaria* in milk, the brain was found very turgid; the whole sinuses of the dura mater, as well as the arteries, were enormously distended with blood; the arachnoid and pia mater were of a scarlet color * *; lastly, a clot of blood as big as a bean was found in the cerebellum (Hist. de la Soc. &c. p. 357). Christison on Poisons, p. 709; Orfila, Traité des Poisons; and Leçons de Méd. Légale, pl. 14, fig. 1.

Orfila experimented on a dog with a variety of the *A. muscaria* of L. It produced trembling and weakness of the limbs, which continued for four hours; when the animal fell into a stupor, the respiration being slow and deep, and every now and then uttered plaintive cries. It would roll itself on the earth, and

occasionally shudder as if under the influence of electricity. For the space of eight hours it had no evacuation. The exhibition of vinegar and tartrate of antimony and potassa only increased the symptoms. After giving olive-oil, vomiting was induced, which brought up portions of the plant. The animal recovered (Trans. from *Traité des Poisons*, 429).

Mérat states that in a certain dose it is not fatal, since Bulliard said that he had eaten more than two ounces without injury. Dogs and cats, however, died after taking a quantity very little larger. M. & De L., *Diet. de M. M.* i. 219. Of course, climate may modify very much the quality of the plant. In higher latitudes a much less quantity proved injurious. It was supposed that the northern hordes, through its invigorating effect, were aided in their victories in the south of Europe (Murray, *App. Med.* v. 556). Reinhardt has employed the tinct. of this fungus as a powerful curative means for exfoliations of the skin; and he gave it internally, with success, in all obstinate cases attended with muco-purulent expectoration. It may be employed alone, or combined with powdered charcoal, in doses of thirty to forty drops, four times a day, in an appropriate vehicle. He advises that the lower part of the foot-stalk be used, gathered at the beginning of autumn (*Bull. des Sc. Méd. de Férus.* i. 365). M. Polet, surgeon at Erveux, has recently advised the use of the powdered plant for dressing cancerous ulcers (*Journ. Analyt. de Méd.* i. 542). This had been before pointed out by Murray (*Apparat. Med.* v. 555), in hard glandular tumors, fistulas, pustules on the cornea, to relieve the paroxysms of epilepsy, to lessen tremor, convulsions, &c. From a half-scruple to a half-drachm three times a day, or one drachm twice a day, in water or vinegar, may be used. If the powder causes too much pain upon the sores, it must be stopped. Mérat & De L., *Diet. Univ. de M. Méd.* i. 220. In the amanatine obtained by the analysis of Letellier (*Journ. de Chim. Méd.* iii. 41), of which the alkalinity was uncertain, it existed in combination with fungate of potash. This principle, in very small doses, proved to be a powerful narcotic poison. *Op. cit. sup.*; Fl. Suec. p. 450; Gruner de *Virtutibus Agarici Muscarii*, vulgo *Fliegen-Schwamm*, tam in internis quam in externis; *Dissert. respondit Whistling*, Jenæ, 1778; Letellier, *Essai sur les propriétés chim. et toxiques du poison des Agarics-à-volva*, Thèse, Paris, 1826.

From the supplem. volume of the *Diet. de M. M.* 1846, we

learn that the plant possesses a remarkable power of coagulating albumen, which property is shared by ergot, and which, according to Malhe, renders them hemostatic,—p. 16. In the same work the writer mentions that he knew a number of soldiers, in the month of October, to eat it in the forest of St. Germain, without the least hesitation. They stated that in the middle of France they had constantly been in the habit of eating them (these were the *A. muscaria*, Pers.). See also, Dr. Beauvais' work entitled *Effets Toxiques*, etc., Paris, 1845: Paulet, *Mem. de la Soc. Roy. de Méd.* i. 473; Id. *Mem. de l'Acad. des Sc.*, Paris, 1774; Georgi, *Obs. sur l'Agaricus Musc.*, Leipsig, 1783; Vadroit, *Obs. sur l'Empois. par les Champ.*, particulièrement par l'espèce appelée Fausse Orange, Paris, 1814.

We observe, however, that M. Roques says distinctly, that this plant has not its poisonous properties modified by any climate,—“*Il est vénéneux dans tous les pays.*” The Czar Alexis lost his life by eating this mushroom; and Toesel reports (*Flora Prussica*), that six Lithuanians suffered equally from its poisonous effects. The details of its effects upon the Kamtschatkans, by Krascheminikow, in his *Natural History* of that country, are explicit respecting the delirious intoxication induced by it; Gmelin and Pallas, also, equally certifying its intoxicating powers. Professor Vanquelin also obtained from this plant, by chemical analysis, many salts, and a heavy body in which resided its poisonous properties. It destroyed cats and dogs in a few hours, if they were not relieved. Bulliard states that dogs suffered more than cats. Roques, also, produced death in one of these by three of them. It was preceded by stupor and prostration, the vessels of the neck being also gorged with blood, and the stomach slightly inflamed. The acetate of ammonia is found to present the best means of relief. Roques reports seven different sets of observations respecting its deleterious effects on man.

<i>Agaricus patherinus</i> , Dec.	{ Panther Agaric. Borders of woods; August to Octo- ber; S. C. ! to Penn.
“ <i>muscarius</i> , v. 2, Purt.	

A singular form of the narcotic effects of this fungus, is recorded in the *Annali Univ. de Medicina*, 1842, 549. It occurred in the case of a boy who had eaten it, near Bologna. In the course of two hours he was seized with delirium, a maniacal disposition to rave, and some convulsive movements. Ere long

these symptoms were succeeded by a state resembling coma, in every way, except that he looked as if he understood what was going on; and, in point of fact, really did so. He recovered speedily under the use of emetics. Christison on Poisons, 705.

<i>Agaricus asper</i> , Pers., Obs. Myc. i. 18.	{	Rough-warted agaric.
<i>Amanita muscarius</i> , v. 5, With.		Woods; June, Oct. (<i>A.</i>
“ <i>myoides</i> , Bolt. t. 139.		<i>asp.</i> of Fr. N. Caro- lina. Linn.)

Odor strong; taste not unpleasant, though saltish. Poisonous, according to Roques' Hist. des Champs. Ven. 319.

Agaricus solitarius, Bull. 10, 593; Roques' Hist. 320; D. C. 560.

According to Bulliard, the taste is exquisite, and it is prepared in the usual way. Roques' Hist. 321.

Agaricus fulvo-albicans, R. Roque, 321. Grows in Sept., in shady woods.

The flesh is white, firm, and milky, and of a taste and odor which is not disagreeable; but as it sometimes grows near pernicious species, Roques advises us against it. Hist. de Champ. 322.

Agaricus cinereus, Roques' Hist. des Champs. 322. Grows in woods.

The flesh is white and friable; but Roques is inclined, from its taste, to suspect it. Hist. 322.

<i>Agaricus rubescens</i> , Pers. sub Am.	{	Changeable flesh-
“ <i>pustulatus</i> , Schoept.		ed Fly Agaric.
“ <i>verucosus</i> , Curt. Fl. Lond. 312.		Woods, especially fir woods. Au- tumn. (<i>A. Rubes</i> of Fries. N. Car- olina to Penn.)

Smell strong, like that of mold; taste not pleasant, like that of a germinating walnut.

According to M. Cordier, it is much eaten in Lorraine, under the name of *Golmelle* or *Gobmotte vraie*; whereas, according to Roques, it is poisonous. Crypt. Eug. Roques does not say it is

poisonous, but cautions us against confounding it with the *A. asper*. Hist. des Champs. Vén. 320.

<i>Agaricus procerus</i> , Scop. Fl. Carn.	{ Large shaggy Agaric. “Gardens, hedge-banks, pastures, and woods.” S. Carolina! to Penn. July and Oct.
“ <i>colubrinus</i> , Bull.	
“ <i>annulatus</i> , Bolt. t. 23.	

This plant was known among the Romans, and mentioned by Pliny. The taste is sweet, and odor pleasant. “Forming on the Continent a frequent article of food.” Roques, Hist. des Champs. 120.

A remarkable set of cases of pure narcotism are related by Dr. Peddie. Half an hour after eating this plant, an elderly man and a boy of thirteen were attacked with giddiness and staggering, as if they were intoxicated; and in an hour they became insensible, the man, indeed, so much so, that for some time he could not be aroused by any means. Emetics having little effect, the stomach was cleared out by the pump, and powerful stimulants were employed, both inwardly and outwardly, by means of which sensibility was in some degree restored. Occasional convulsive spasms ensued, afterwards furious delirium, attended with frantic cries and vehement resistance to remedies, and followed by a state resembling delirium tremens. The pupil at first contracted, but afterwards dilated, as sensibility returned. In neither of the two instances was there any *pain* felt at any time, nor were the bowels affected. Another boy, who took a small quantity only, had no other symptom but giddiness, drowsiness, and debility. (Edinb. Med. & Surg. Journal, xlix. 192.) Christison on Poisons, p. 705. The above cases plainly show the possession of some narcotic property, when taken at certain seasons, that is, if Mr. Peddie was correct in the species. Roques does not intimate any inconvenience from eating this plant, and he gives various processes for serving it up.

<i>Agaricus clypeolarious</i> , Bull. 405, D. C.	} Found in autumn in wet woods. S. C. to Penn.
“ <i>malcagris</i> , With.	
“ <i>colubrinus</i> , Pers. Syn. 258.	

Its consistence is soft, and odor slightly agreeable. It is supposed to be poisonous by some, whilst others consider it eatable. M. Roques mentions that he has twice eaten a small quantity

without experiencing any bad effects. Hist. des Champs. Comest. et Vén. 302.

<i>Agaricus melleus</i> , Vahl.	<div style="display: inline-block; vertical-align: middle; font-size: 4em; line-height: 1;">{</div> <div style="display: inline-block; vertical-align: middle; padding-left: 10px;"> Black-scaled Agaric. "Near or upon old stumps." Sept., Oct. S. C. to Penn. </div>
" <i>annularius</i> , Bull. & Roques' Hist.	
" <i>fusco pallidus</i> , Bolt.	
" <i>stipitis</i> , Sow. t. 101.	
" <i>polymices</i> ,	

Odor agreeable; taste like that of *A. campestris*, with a slight degree of acidity, and sometimes acrid. Notwithstanding Trattinnick's assertion of its good qualities, and frequent use in Austria, in which he could scarcely be mistaken (Ess. Schw. 46), it appears that it has, by others, been found poisonous. See Grev., Sc. Crypt. Fl. l. c.; and Roques' Hist. des Champs.; Crypt. Eng.

Orfila cites it as among the poisonous species. Traité des Poisons, iv. 429; Lec. de Méd. Leg. 19, p. 1.

Roques says it has a disagreeable, styptic taste, and that, administered to animals, it causes an inflammation of the alimentary canal, and death. Hist. des Champs. Vén. 303.

Agaricus cerasinus, Berk. Laurel-scented Agaric. Oct.

Odor pleasant, exactly like that of the leaves of *Prunus lauro-cerasus*.

A. eurabescens seems to be the nearest to this species, which is remarkable for its pleasant smell of bitter-almonds. Crypt. Eng.

<i>Agaricus chureus</i> , Bull. 118, D. C.	<div style="display: inline-block; vertical-align: middle; font-size: 4em; line-height: 1;">}</div> <div style="display: inline-block; vertical-align: middle; padding-left: 10px;"> Ivory Agaric. Woods. Oct. (Eburneus of Buxb. N. Carolina.) </div>
" <i>nitens</i> , Sow. Fung. 39.	
" <i>luteus</i> , Shaeff. Fung.	

Inodorous, according to Bulliard; of a faint, pleasant odor, according to Sowerby; and, according to Roques, not disagreeable. Eaten in Italy under the name of *Jozzolo*. M. & De L. et auct.

Agaricus nitens, Bauvoux (Ined.) Roques.

This, which Roques says may be confounded with the *A. nitens* of Bull. (*A. semiovatus* of Sowerby and Berk.), grows near the end of summer. It has an agreeable taste, and is eaten in some countries.

Agaricus murinus, N. Roques' Hist. 385.

This is remarkable for its grace and elegance. The *A. murinus* of Sowerby, Berkley says, turns to a beautiful verdigris green. (Crypt. Eng.) It is found in July and August, and has a nauseous odor. It has affinities with poisonous species, and is therefore to be suspected. Roques, 360.

Agaricus conicus, Picco. Mem. Soc. Med. 3; Roques, Hist. 361. (*A. conicus* of Scop. S. C. to Penn.)

This bears some resemblance to the preceding. Dr. Picco, of Turin, has detailed some observations concerning its deleterious effects, which appeared in the Mém. de la Soc. Roy. de Méd. The substantial facts are, that a whole family were poisoned by a plate of them, with symptoms of spasm and vomiting of blood, resembling those we have detailed under *A. vernus*.

Agaricus russula, Pers. Syn. 338; Schoeff. 58; Roques, Hist. 269.

Roques, in cautioning us against confounding this with the *A. emeticus*, the head of which is red, but has no scales, states that it is agreeable to the taste.

Agaricus palomet. { Thore Chl. Land. 447; D. C., Fl. Fr.
" *virens.* { Supp. 525; Roques, Scop. Fl. Car. 437.
 { Grows in spring and autumn, in woods.

The flesh is white, fleshy, and of exquisite taste.

The following agarics are not arranged under any natural order.

Agaricus albellus, D. C. (non Schaeff.) Bull.

This is eaten in the northern provinces of France, and is much sought after by some amateurs. M. & De Lens, Dict. de M. Méd. i. 105. M. Roques gives a number of modes of preparing these mushrooms, 246.

Agaricus alborufus, Pers.

This is also eaten in France. M. & De L.

Agaricus attenuatus, D. C.

Eaten at Montpellier, according to De Candolle. Mérat, *op. cit.*, and Roques, Hist. des Champs. 304.

Agaricus auriculatus, Dubois, Fl. Or. 168.

Eaten near Orleans, in France. *Ibid.* It has a very agreeable taste, and dries easily. Roques.

Agaricus candicinus, Schaeff.

Used as food in Germany. Fung. i.; Mérat & De Lens. M. Roques cites *A. candic.* of Pers., *A. mutabilis*, Schaeff., as being eaten in Germany, though a species which resembles it is considered poisonous. Hist.

Agaricus virgineus, Wulf, Jacq. Misc. }

“ *cenceus*, Bull. }

“ *niveus*, Schaeff. }

White field Agaric.

Eatable. M. & De Lens, Diet. de M. Méd. i. 107. The *A. virgineus* of Jacq., Miscel., *A. niveus* of Schaeff.; Roques cites it as being eatable. Considered a fine mushroom.

Agaricus eryngii, D. C., Fl. Fr. }

Fungus “ Mag., Bot. Montep. 103. }

Its substance is firm and white; taste fine and delicate. This is eaten in many of the Provinces. M. & De L., Diet. de M. Méd. i. 104. M. Masse says it is very much sought after for the table. Roques, Hist. des Champs. 260.

Agaricus illicinus, D. C.

It is eaten at Montpellier, in France. *Ibid. loc. citat.*, et Roques.

Agaricus orellus, Bull., Champ. t. 59 et 573.

This, according to Persoon, is eatable. *Ibid.*

Agaricus palomet, Thore.

Eaten in Gascony, in France. *Ibid.* i. 105.

Agaricus olearius, D. C., Fl. Fr.

According to Persoon, it is very poisonous. (Traité des Champ. Comest. 207.) M. & De Lens, Diet. de M. M. xi. 105. Micheli also considers it poisonous.

<i>Agaricus aurantiacus</i> , Bull., 120 ; Roques ;	} Orange Agaric. Found in end of Spring, in woods. Grows through- out Europe.
D. C., Fl. Fr. 562.	
<i>Amanita aurantiaca</i> , Pers., Syn. 252.	
<i>Agaricus cæsaræus</i> , All., Fl. Red. 339.	
“ <i>speciosus</i> , Tourn., Fl. de Toul. 286.	}
<i>Fungus orbicularis aureus</i> , Mich., Gen. Pl.	

This plant, which does not correspond with the *A. aurantiæ* of the Crypt. Eng., is said by Roques, who devotes some attention to it, to have an exquisite taste and delicate perfume. He regards the Orange Agaric as the finest and most delicate of mushrooms. It was known among the Romans, under the name of Boletus. The Greeks also called them Bolites, and preferred them to all other mushrooms. The celebrated gastronome, Apicius (De Fungorum Apparatu), has traced in all its detail its mode of preparation ; and Horace, Seneca, Juvenal, Pliny, Martial, and Suetonius, have mentioned it. Juvenal speaks thus of their preference :

“ Vilibus ancipites fungi ponentur amicis ;
Boletus domino.”

Martial also alludes to it, thus :

“ Argentum atque aurum, lenamque, togamque,
Mittere : boletus mittere difficile est.”
Ep. 48, 13.

“ Dic mihi quis furor est, turba spectante vocata,
Solutus boletus, Ceciliæ, voras.”
Ep. 20, 1.

Nero called it *Cibus Deorum*.

This species should be distinguished from the *Amanita muscaria*. The former has a complete volva, whilst in the latter it is incomplete, and exhales a disagreeable odor, whilst in the *A. aurantiacus* it is agreeable. The poisonous species is spotted on the top, whilst the other is of a yellow orange color, without spots.

Roques advises us to be on our guard in selecting these plants, citing the instance of the Cardinal Caprara, who was poisoned by confounding them. Roques, Hist. des Champs. Comest. 344.

Agaricus purus, Pers. } Rose Agaric. S. C. ! and N. C.
“ *roseus*, Bull. }

According to Krapf (Champ. Comest.), it is extremely dangerous, neither boiling nor drying being sufficient to deprive it

of its deleterious properties. Paulet did not discover any sensible effect when experimenting with it. Mérat & De L., Diet. de M. Méd. i. 105 ; Willemet, Essai sur l'Histoire Nat. du Champ. Vulgaire ; Nouv. Mém. de Dijon, 1783, 195.

It is distinguishable by its taste and odor, which is like that of radishes. Crypt. Eng.

<i>Agaricus amethysteus</i> , Bull. 570 ; Roques ; Bolt.	} Grows in Autumn.
“ <i>laccatus</i> , Scop. Berk. Crypt. Eng.	
“ <i>carneus</i> , Schaeff. 303.	

The flesh is violet colored and slightly savory, and eatable.

<i>Agaricus vernus</i> , D. C., Fl. Fr. 565 ; Roques.	} <i>Agaric prin-</i> <i>tanicr.</i> Found more usually in August and Sep. in woods.
“ <i>bulbosus vernus</i> , Bull. Champ. 108.	
<i>Ananita bulbosa-alba</i> , Pers. Champ. 22.	

Its resemblance to the edible mushrooms has been the cause of the most unfortunate results. It is white in every part, enveloped in a volva of the same color. The trace of a volva also distinguishes it from the edible species. The poisonous plant also exhales a disagreeable odor, and has an acrid taste, which is not observed in the edible. The *fenillets* of the poisonous plant are also always white, whilst those of the other are slightly rose or violet colored. All the varieties of the bulbous agaric of Bulliard contain a very deleterious fatty matter.

By experiments made upon animals, Paulet administered to a vigorous dog a patée of the (green) bulbous agaric in dose of three drachms. In six hours after, the animal exhibited the first effects of the poison, making efforts to vomit ; the limbs became feeble ; laid down, and, after some convulsive movements, died. The stomach and duodenum exhibited livid spots, and the whole intestinal canal was filled with thick and yellow mucus. The cesophagus and kidneys were in a natural state.

The *Agaricus citrinus*, administered in the same way, produced the same results. The juice, exhibited in dose of a half-ounce in a little water, acted with more violence. The animal vomited with much effort, and with convulsive movements. After having a sort of cholera, it fell into a collapse, and died twenty-four hours after the introduction of the poison. The distilled water

of the same mushrooms did not produce any serious consequences, but a small dose of the residue sufficed to poison two dogs. The aqueous extract also caused death. Water, in which many of these mushrooms were macerated, charged with the deleterious principle, produced bloody evacuations; but the animal did not die. Alcohol, ether, vinegar, wine, and salt and water, had the property of dissolving the poisonous matter; these different liquids acquiring thus a very intense deleterious action, and causing death in animals in less than twenty-four hours. The facts contained in the work of Paulet, and in certain scientific reviews, prove that the influence of these plants upon man is not less dangerous.

M. Guibert, his wife, her daughter, two boys, and a domestic, eat at dinner a quantity of the *citrine amanita*. About three hours after, Madame G. was prostrated by its effects, suffered from nausea, vomiting, and continued sleepiness. Upon taking an emetic she vomited portions of the mushroom, and was relieved, though it was several hours before she entirely recovered. M. Guibert himself was attacked by a severe cholera morbus, and very painful cramps. There was no fever in either of these cases. All except M. Guibert were in a stupified state. The daughter and the boys, who had refused the emetic, died. A cat, which had also eaten some portion, almost died from the effects.

Observation 2d. M. Benoit, his wife, her daughter and infant, eat, at six o'clock in the evening, of the *Amanita printanier* (*Agaric vénéneux* of Roques), which were gathered in the woods near Boulogne. On the next day they suffered from nausea, anxiety, and frequent faintings. On giving to the father and the child milk, ether, and a strong dose of an emetic, abundant vomiting was induced. They were upon the point of giving the same to the mother, when she suffered from a flow of blood and continued prostration. The child was nearly dead when Dr. Paulet arrived. The father was found in a state of permanent anxiety and stupor; his stomach was tense, extremities cold, and pulse weak and intermitting. His whole body was livid, and he died a few minutes after. The mother vomited abundantly; her complexion was pale and cadaverous, and there was constant weakness and anxiety. Upon giving an ordinary purgative, after two or three hours she evacuated portions of the plant, and an abundance of yellow mucus. She took the milk with orange-flower water and a few drops of ether, which gave much relief. The

next day she was purged, and the uterine flow was arrested. There was weakness and oppression existing for some time, and she suffered from pains in the head and stomach for six months.

There are other cases related by Paulet, and in the "Gazette de Santé," 1777, in which there was also stupor and dilatation of the pupil, all being much benefited by the purgative treatment; Roques believes that the indication is to relieve the gastrointestinal inflammation by leeching, mucilaginous and oily drinks, and topical demulcents. Roques, Hist. des Champs. 354.

Agaricus candidus, Briganti, Fung. Icon. }

Amanita candida, Roques, Hist. des Champs. 355. }

Prof. Briganti relates that a number of natives of Naples who ate of this, suffered from violent cardialgia, and vain efforts to vomit. They had vertigo, and respired with difficulty. These symptoms increased to such an extent as to threaten death, which was only prevented by vomiting. Roques, Hist. des Champs. 357.

Agaricus pusillus, D. C., Fl. Fr. Roques, Hist. }

" *volvaceus minor*, Bull. 330. }

Amanita pusilla, Pers.

Grows in
N. C.

This beautiful little mushroom, found in woods and gardens, approaches so near to poisonous species, as to induce us to exclude it from the list of edible ones. Roques, Hist. 357.

Agaricus leiocephalus, D. C., Fl. Fr. Supp. 564; Roques, Hist. 357.

This beautiful species has a firm, white flesh and very agreeable taste and odor, and is much approved of as an article of food. Roques, Hist. des Champs. Vén. 358.

Agaricus citrinus, Cher., Fl. Par. 125, Roq. }

Amanita citrina, Pers., Champ. ii. 1. }

Grows in autumn, in woods.

The flesh is white and of a strong odor. A small dose will excite vomiting in animals. A cat to which Roques gave a drachm, had spasms and vomiting; another which took a larger dose, died in convulsions. Hist. des Champs. Vén. 349.

Agaricus maleficus (N.), Roques, 361.

For observations respecting this doubtful species, see Roques' Hist. des Champs. Vén. 361.

Agaricus aromaticus, Sow. Aromatic Agaric.

"Whole plant, when fresh, so tender that it is difficult to gather. Odor agreeably spicy; taste watery, with a peppermint-like coolness in the mouth, and a lasting roughness in the throat." Sowerby. The *A. aromaticus* of N., Roques says, has a fine taste, and is by some preferred to truffles. Hist. des Champs. 256.

Agaricus semiglobatus, Bat., Cont. 110; Pers., Syn. 407; R. 205.

" *glutinosus*, Curt., Fl. Lond. 205.

" *vireosus*, Sow.

Hemispherical Agaric. Rich meadows and dunghills; May and November; S. C. to Penn.

According to Sowerby, this species is injurious. Prof. de Candolle places all the coprins among the poisonous fungi. Their tenuity, their rapid alteration, sweetish, and sometimes acrid taste, is sufficient to proscribe them. Roques, Hist. des Champs. Ven. 207.

Agaricus albo-brunneus, Pers.

" *striatus*, Schoeff.

" *glutinosus*, Bull.

" *viscosus*, Purt. 3, 208.

White and Brown Agaric.
In clusters on the ground,
and on stumps; Novem-
ber.

Remarkably glutinous. Bulliard describes his plant as having no unpleasant taste nor smell; and Fries, in his *Obs. Myc.* confirms this, and suspects that it may be eatable. Persoon, on the contrary, who describes four states, pronounces all more or less bitter and acrid. Crypt. Eng.

Agaricus castaneus, Bull., Champ. 268; Pers., Syn. 298; Roques, Hist. 292. Common in woods, in spring and autumn; S. C. to Penn.

It has the taste of a good mushroom, and is eaten in Italy.

Agaricus hæmatocheilis, Bull., Champ. 596; Roques, D. C. Fl. Fr. 535. Grows in spring and autumn, in dry woods.

It has a slightly sapid taste, and nothing which would announce injurious properties. Roques, Hist. 293.

Agaricus rutilans, Schoeff. Crimson-red, Downy Agaric. Odor strong, disagreeable; taste bitter, nauseous.

Agaricus sanguineus.

Orfila cites this among the poisonous species.

Agaricus personatus, Fries.

“ *bulbosus*, Huds., Fl. Ang.

“ *violaceus*, Sow., 209.

} Variable, Blue-stem'd
Agaric. Pastures, Oct.
Jan.; S. C. ! and N. C.

Sold, according to Sowerby, in Covent Garden Market under the name of *Blewitts*. Crypt. Eng. Orfila, under *Amanita* and *Agaricus bulbosus*, describes several poisonous species.

Agaricus violaceus, Linn., Fl. Suec. 448; Bull., 598; Roques, }
Hist. 291.

“ *hercynicus*, Pers., Syn. 278.

Found in autumn, in woods; N. C. to Penn. H. W. R., Schw.

Flesh is white, tinged with violet, and of a sufficiently agreeable taste, but odor rather strong. Roques does not hesitate to place it among the edible species. Micheli says it is eaten in Tuscany. Roques, Hist. des Champs, 292.

Agaricus alutaceus, Pers., Syn. }

“ *pectinaceus*, Bull.

“ *auratus*, With.

“ *campanulatus*, Pers.

} Buff-gilled Agaric. Woods,
July and October; S. Car-
olina! to Penn. H. W. R.

Taste mild, pleasant, acrid when old. “By common consent pronounced esculent; but individual specimens occur which prove almost as acrid as *A. emeticus*.” Crypt. Eng.

Christison cites from the Lond. Med. and Phys. Journ. xxxvi. 451, as a good instance of pure narcotism, the following case: A man gathered in Hyde Park a considerable number of the *Ag. campanulatus*, by mistake for the *A. campestris*, stewed them, and proceeded to eat them; but before ending his repast, and not above ten minutes after he began it, he was suddenly attacked with dimness of vision, giddiness, debility, trembling, and loss of recollection. In a short time he recovered so far as to be able to go in search of assistance; but he had hardly walked 250 yards when his memory again failed him, and he lost his way. His countenance expressed anxiety, he reeled about, and could hardly articulate. The pulse was slow and feeble. He soon became so drowsy that he could be kept awake only by constant drugging. Vomiting was then induced by sulph. zinc; the

drowsiness gradually went off, and next day he complained merely of languor and weakness. On Poisons, p. 705. The case would be more instructive if we could rely upon the identity of the plant; for the *A. campan.* of Schoeff. is also synonymous with the *A. hypnorum* of Sehrank., while that of With. is identical with the *A. striatus*, Bull.; the latter, however, is oftenest found growing in meadows.

Roques considers *A. campan.* Pers. a variety. He says, they are eatable, but care should be taken not to confound them with the emetic agaric. The edible can easily be distinguished by the possession of gills which are always white, while the poisonous have yellow. Hist. des Champs. Ven. 175.

Orfila cites the *A. campanulatus*, in general terms, as poisonous.

<p><i>Agaricus emeticus</i>, Schoeff.</p> <p>“ <i>pectinaceus</i>, Bull.</p>	{	<p>Common-gilled Agaric. Very common—woods; July and December; S. C., II. W. R.; all the varieties are poisonous.</p>
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A case of poisoning by this species, is related in the Journ. de Chim. Méd. x. 241. Three persons died from eating it gathered in the woods at Vincennes. The *A. bulbosus* could, however, be gathered in the same neighborhood. M. & De Lens' Diet. de M. M. Supplem. 1846, 16.

When taken into the throat it imparts a burning sensation, which lasts for some time, but which is dissipated by gargles of fresh water. Krapf has made experiments upon himself with the *A. emeticus* of Pers., by which he ran great risk; escaping with his life only by means of an emetic and the use of fresh water. According to this naturalist, oil and vinegar augmented its acridity.

The experiments made by Paulet upon animals, were very contradictory, as many of these plants have no sensible effects. M. Roques, in order to ascertain positively what power the plant possesses, so that he selected the one best known. After ascertaining its acridity by tasting, he swallowed a bit the size of a five-franc piece,—having first prepared four grains of tartar emetic, in two parcels. After an hour he commenced to experience pains in the stomach, followed by some nausea. Upon taking a cupful of water they became sharper, and the nausea was also increased; but, the bit of mushroom not being large, he hoped to avoid taking the emetic, trying to excite vomiting by placing

the fingers down the throat. In a word, he succeeded in vomiting up the morsel. After swallowing some water he threw up bilious matter, and subsequently experienced a trembling sensation in the lower extremities, which was owing to the efforts made to vomit. Though he does not consider that he ran much danger, yet he is now convinced that Paulet must have made his experiments with plants with yellow gills, or that men possess a sensibility differing from that of other animals. The emetic agaric with a red head, is the most poisonous. Three Italians, one aged thirty-one, the other fourteen, and the third a little girl of eight, having eaten, in Sept. 1826, of these mushrooms, called in their country *rossola*, the signs of poisoning manifested themselves in the two first in half an hour; in the infant it was more slow, but exhibited itself with more violence. The phenomena were characterized by vertigo, constant nausea, vomiting of bilious matter, with portions of the plant. There was ardent thirst, cough, painful spasm in the epigastric region, weakness, constipation, a cold feeling over the body, especially in the extremities, and lastly, weakness and irregularity of pulse. Dr. Larber, who saw the cases, administered an emetic in small, repeated doses, then purgatives and small quantities of ammoniacal stimulants. This was beneficial to the two first, but the child, in whom the bad symptoms declared themselves twenty-four hours after eating the mushroom, received no relief; it died the next day (Larber, *Sui Fungi Saggio Generale*, tom. i. 89). In order to distinguish the poisonous species from the good, we observe that in the latter the gills are yellow and always equal; in the bad they are white, and unequal in length. The emetic agaric have also an acrid, burning taste, while that of the eatable species is pleasant. Roques, *Hist. des Champs. Vén. et Comest.* 179.

<i>Agaricus sanguineus</i> , Bull., 42; Roques.	} It grows solitarily in the woods.
“ <i>ruber</i> , D. C. Fl. Fr.	
“ <i>integer</i> , Linn., Spec. 1640.	

This agaric is even more poisonous than the *A. emeticus*, to which it bears some resemblance,—hence requires attention, so as not to confound it with the eatable russules. On the 2d of November, ten individuals, in a forest near Strasbourg, eat freely of the *Agaricus integer venenatus*. M. Claude, a physician, saw these persons about three hours after midday. Four of them, who had eaten less, and had provoked vomiting by irritat-

ing the fauces, escaped with only slight symptoms. The others experienced an acute irritation of the entire alimentary canal, had vomiting, cough, ardent thirst, with cardialgia, anxiety, and oppression. The eyes were haggard, open, prominent, the pulse full and weak at intervals, the tongue pointed, etc. M. Claude provoked vomiting by antimony and the use of a feather. The stomach was evacuated, a purgative was ordered, and subsequently several glasses full of the decoct. of quinquina. This sufficed to relieve five of those sick. In the sixth, a man of strong constitution, the following phenomena were observed: tympanitic distension of abdomen, extreme epigastric sensibility, violent trismus, distortion of countenance, weak pulse, profound coma, from time to time a silent delirium (*délire taciturne*), weakening of the tendons, and cold extremities. A repetition of the emetic provoked copious vomiting, with an amelioration of some of the bad symptoms. After another purgative and abundant discharges, the abdomen became natural. The powder of quinquina was added to the decoct. of the bark. Some of the sick would now and then regain their consciousness, and then relapse into a state of insensibility. Frictions were made to the soles of the feet, and the forehead and temples were bathed with vinegar, and the respiration of ammonia was used. The coma, which had lasted three hours, disappeared entirely, and was replaced by a lively delirium, followed by furious and extreme loquacity. It required a number of persons to confine the sick. After an hour the delirium ceased, and a calm sleep succeeded for three quarters of an hour. Those that were sick remembered nothing, and complained alone of weakness.

Another set of cases observed were those of J. M.,—a woman at service, aged twenty-eight, and *enciente*,—her daughter, aged six years and a half, her mother, aged sixty-four, and a man aged forty-two, of a sanguine temperament. All were natives of Bordeaux, and eat for supper some of these mushrooms. The symptoms which followed we cannot detail here; but they resembled, generally, those cited above. There were also dilated pupils, and difficulty of respiration. (We refer the reader to Roques, *Hist. des Champs*. 183; Guerin de Mamers *Nouvelle Toxicol.* 331.) Authors are not agreed as to the properties of *A. integer*, of Linn., confounding it with this, and with the *A. emeticus*. See “*Toxicologie*” of Plenck, and his “*Bromatologie*.”

Agaricus fetens, Pers., Syn. 443. } Fetid, Simple-gilled Aga-
 “ *piperatus*, Bull., 292. } ric. Woods; July; Caro-
 “ *incrassatus*, Sow. } lina to Penn. H. W. R.

Highly acrid; odor very strong and penetrating, empyreu-
 matic, somewhat resembling that of prussic acid, but exceedingly
 disagreeable. Crypt. Eng.

M. Roques does not hesitate to place it among the poisonous
 species. Hist. des Champ. 185.

Agaricus furcatus, D. C. 371; Roques, Pl. 12, 3. }
 “ *bifidus*, Bull., 26. }
Russula furcata, Pers., Obs. Myc. 202. }
Amanita, Lam. }

Green Fork-gilled Agaric. S. C. and Penn. H. W. R.

The flesh is white and friable, of a nauseous odor, and of a
 bitter and saline taste. It passes for poisonous. Roques, Hist. 185.

Agaricus virescens, Pers.; Berkley, Crypt. Eng. }
 “ *furcatus*, va. *heterophyllus*, Fries. }
 “ *squalidus*, Chev., Fl. Par. 141. }

Mild Fork-gilled Agaric. Woods; July to September.

Taste and odor mild. Excellent for food, according to M.
 Roques, and eaten under the name of “*verdette*,” but requires to
 be carefully distinguished from the *A. furcatus*, and other acrid
 russulæ. Crypt. Eng.

Agaricus turbinatus, Bull., Champ. 110; Fries, Syst. 255;
 Roques, Hist. 292. Grows in autumn, in woods; N. Carolina.
 Schw.

This species, says Roques, is considered edible by some; but
 it has neither an agreeable taste nor odor. Champ. Comest. 292.

Agaricus globocephalus.

Cited as poisonous, by Orfila, in his Treatise on Poisons.

Agaricus torminosus, Schoeff. }
 “ *piperatus*, Linn., Succ. 1195. } Bearded
 “ *neccator*, Bull.; Roques, Hist. des. Champ. }

Pepper Agaric. Woods, heaths, thickets, borders of fields;
 June; N. Carolina. Schw.

Very acrid; but the Russians preserve it in salt, and eat it
 seasoned with oil and vinegar. Roques, Hist. des Champ. 88;

Bougard, Lond. Med. Gazette. The plant is said to be poisonous in France; but this may be confounded with the *A. piperatus* of Scop., see *apud* p. 244.

The *A. necator*, of Bull. is said by him to produce “terrible colics.” Orfila, *Traité des Poisons*, iv. 425; and *Lég. de Méd. Légale*, avec planches descript. M. Braconnot found in this, and *A. volvaceus*, gelatine, albumen, and phosph. potash in large quantity, also adipocire; which indicate an animal nature. *Ann. de Chim.*; M. & De Lens’ *Dict. de M. Méd.* ii. 203; see also, *A. pip.* infra. In *supplem.* vol. 1846, to M. & De Lens’ *Dict. de M. Méd.*, experiments to test the power of the *A. pip.* Linn. in dissolving stones in the bladder, are advised—Loesel (*Flor. Pruss.* 82) having stated that the milky juice, mixed with the syrup of *Althæa*, would bring away the gravel with the urine, as his own experience had attested. Roques mentions that the experiments of Paulet seem to prove that this plant is not poisonous, although Bulliard and Dr. Picco assure us to the contrary. Roques gave to two young cats one of these mushrooms mixed with food. Although it had taken a very little, it was seized with a violent diarrhœa, with much weakness and trembling, which lasted for several hours. On the next day, one of these animals still remained feeble, while the other was in a natural state. He repeated the experiment upon a dog, which ate a mushroom mixed with its food. An hour afterwards it vomited, and rejected the entire mixture. It remained prostrate for many hours, and appeared much exhausted. In the evening it took milk with avidity. It is probable, he adds, that the poison would have caused death, or very grave symptoms, had it not been rejected.

Dr. Larber reports a case of poisoning, occasioned by the *A. necator* of Bulliard, and one of its varieties. Two persons died at Bassano from having eaten these plants. Among the principal phenomena, he observed violent vomiting amounting to a sort of cholera, followed by a profound stupor, which no remedies could subdue. He found the sanguineous vessels of the meninges much injected, and the digestive organs more or less inflamed (*Sow., Fung. Sag.* i. 75). Bulliard, remarks Roques, thought that he did not confound this with the species eaten in portions of Europe; but the two have nothing in common, with the exception of a milky juice. The poisonous plant may be confounded with

the common Hydnum (repandum), which has the same color. Hist. des Champs. Vén. 197.

Agaricus deliciosus, L., Succ. 120 ; Pers., Syn. 432 ; Roques. *Lactarius* of recent botanists. Orange-Milked Agaric. Fir woods ; September and October ; S. Carolina! to Penn.

Odor and taste agreeable, like that of *cantharellus cibarius*, but slightly acrid. From the account given by M. Roques, it would seem that this agaric, however delicious, is not always to be eaten with impunity, or that the species which is found in the north of Europe is different. I have always found the milk acrid. Crypt. Eng. Orfila, in his *Traité des Poisons*, describes a poisonous species under *A. acris*, Bull. Léc. de Méd. Leg., Pl. 18, fig. 3.

M. Dufresnoi mentions it as a remedy for tuberculous phthisis. He mixes three drachms of the powder in an opiate made of a half-ounce of conserve of roses, two drachms of spermaceti, the same of washed sulphur, mixed in syrup of Milfoil. He assures us that the use of this electuary, of which a person can take a piece the size of a grape during the day, continued for some time under suitable regimen, cured more than thirty cases of phthisis tuberculosis (Mat. Med. Indig. par Coste et Villemet, 91). A person in experimenting with it might give, Mérat adds, the powder mixed simply with honey. M. & De Lens' Diet. de M. M. i. 104.

Roques says that the mushroom eaten in Germany under the name of *Reitzker*, has a piquant taste, and contains a mucilaginous principle very abundant, which announces its nutritive qualities. Plenck says it is excellent as a ragout. The Germans preserve it in vinegar for winter use. It was owing to the possession of this mucilage, that Dufresnoi praised it as a remedy in pectoral affections.

<i>Agaricus voleumum</i> , Fr.	} Milk-red, Milky	
“ <i>ruber</i> , Tratt., Fung. Aust.		} Agaric. Woods ; July, Aug. S. C. ! and N. C.
“ <i>lactifluus</i> , Schoeffl.		

Lactarius of more recent botanists.

It is pronounced by Trattinnick excellent for food, if properly prepared ; but very unwholesome, if not sufficiently stewed. M. Roques' account, if in the cases he mentions there was no mistake as to the species, is even more unfavorable.

Mr. Berkley says he has seen the particles in the milk of this species, moving about in every direction with immense rapidity, exactly like those observable in gamboge mixed with water. Crypt. of Eng.

<i>Agaricus subdulcis</i> , Pers., Syn. 433; Roques, Hist. 200.	}
“ <i>lactifluus dulcis</i> , Bull., Champ. 224.	
“ <i>rubescens</i> , Shoeff., Fung. 73.	

The flesh is milky, and in the young individuals, impregnated with a sweetish, milky juice, which becomes nauseous and acrid in those older. Roques says it is eaten in some localities. Hist. des Champs. Comest. 200.

<i>Agaricus lactifluus aureus</i> , Pers., Champ. 220; Roques.	}
“ “ <i>ruber</i> , Trattin, Fung. Auster. 3.	

The flesh of this plant is fine and delicate, and is much eaten in Europe. Roques says that this resembles the *A. lactifluus* of Linn. according to Plenck; but this is less firm in texture, and acquires by cooking a very agreeable taste. It is very gelatinous and nutritive, but difficult to digest (Bromatologia, 83). The general remedies advised in the Hist. des Champs. Ven. for poisoning by the milky agarics which irritate the viscera, are mucilaginous and antiphlogistic remedies. Vomiting is recommended in the first stage, but not if the digestive tunics are much inflamed. *Op. cit.* 204.

Agaricus acris, Bolt., Pers. Syn. 437; Fr., 65; Roq. & Berk.
 “ *urens*, Poir., Encyc. Supp. 405.

Acrid Milky Agaric. Woods; August; N. Carolina. Schw.

Roques says this is not the acrid agaric of Bulliard. It has a milky, acrid juice.

Agaricus papilionaceus, Bull., Champ. 561; Pers., Syn. 410; Berkley.

It grows in woods, and is not eatable. S. C. ! to Penn. Roques, Hist. des Champ. 205.

Agaricus narcoticus, Botsch, Fung. 16, 79.

It gives out a narcotic odor, which causes pain in the head in those who come in close contact with it for some time. Roques, Hist. des Champ. Vén. 205.

Agaricus Pyrogalus, Bull. and Roques.

Small-Zoned Agaric. Grows in woods; August.

Orfila describes it as poisonous. *Traité des Poisons*, iv. 426; *Leç. de Méd. Lég.* pl. 18, f. 2. The milky juice is sweet, but extremely acrid. Roques places it among the poisonous species. *Hist. des Champs*. 198.

Agaricus quictus, Fr.

"Odor oily, and sometimes like that of bugs." Berkley's *Crypt. England*.

Agaricus piperatus, Scop., 449; Roques; Berk. *Crypt.* }

" *amarus*, Schoeff., t. 83. }

" *acris*, D. C. *Fl. Fr.* 375. }

Lactarius (see *A. pip.* supra).

Pepper Agaric. Woods; July and August; S. Carolina! to Penn.

Though very acrid when raw, it loses its bad qualities entirely by cooking, and is extensively used on the continent, prepared in various ways. It is preserved for winter use by drying, or pickling in a mixture of salt and vinegar. *Crypt. Eng.* Fodere mentions that this species continues acrid after it has been dried (*Méd. Legale*, iv. 61), which tends to refute the idea that all are safe when dried. It is stated that it is eaten in Prussia and Russia, but that it is poisonous in France (Haller, *Hist. Stirp. Helv. Indig.* ii. 328),—probably the species described by Orfila under this name as poisonous. *Traité des Poisons*, iv. 425; *Leçons Méd. Lég.* pl. 19, fig. iv. Roques says that all parts contained a viscid milk, abundant, and very acrid, which Bauhin had shown to possess an irritating action upon himself; which M. Roques had occasion to confirm by his own experience. Upon one occasion he bruised one and tasted a portion, which caused a burning sensation over the whole throat. Plenck says that it irritates the tunics of the stomach, provoking cardialgia, and even causing death. Roques has eaten them when boiled.

This agaric contains a gelatinous principle, and a milky fluid, which becomes concrete, and dissolves perfectly in alcohol. The resulting tincture is of a beautiful golden color. By the analysis of Braconnot, it furnishes albumen, adipocire, crystals of sugar, acetate of potash, etc. Dr. Dufresnoi assures us that he has given it with success in the first stage of phthisis. This plant should

not be confounded with the *A. sanguineus* or *fatidus* of the French Flora. Roques, Hist. des Champs. Vén et Suspects. 193.

<i>Agaricus pratensis</i> , Pers., Berk. Crypt. 39.	} Reddish Field Agaric. Past's and gras'y pl'ces. Aug.; N. Car. Schw.
“ <i>fulvosus</i> , Bolt.	
“ <i>miniatus</i> , Schoeff.	
“ <i>ficoides</i> , Bull., Roques, 242.	

Odor slightly agreeable, eatable.

Agaricus fulvus, Roques, Hist. Champ. Com. 262. N. Carolina. Schw.

This, which Roques says is not the *A. fulvus* of Bull., has a well-pronounced odor, but a sweet and agreeable taste. Hist. 262.

Agaricus tortilis, Bull. 144; D. C. Fl. Fr. 525; Roques, 273. Grows in pastures; August and September.

It has a strong perfume and an agreeable taste, and is much esteemed as an article of food. Roques, Hist. des Champs. 275. Roques also devotes a large share of attention to this in his *Phytographie Méd.* t. iii. 74-162; and in his *Nouveau Traité des Pl. Usuelles*, t. ii. 370. He says that this species is undoubtedly eatable, and is not to be confounded with the *Amanitas*, as some have.

<i>Agaricus oreades</i> , Bolt., Fries' Syst. Myc.	} Fairy-ring Ag- arie, Scotch Bon- nets, Champ. Ca. to Pa.; pastures; May and Novem.
“ <i>oreades</i> , With.	
“ <i>pseudo-mouceron</i> , Bull.	
“ <i>pratensis</i> , Sow. t. 247.	

Taste and odor strong, but agreeable. Though tough, much used as an article of food on the Continent, and occasionally in this country; but too frequently very different and poisonous fungi are gathered under the name. See *Mush. and Champ.* Illust. by J. D. Sowerby; and Roques, Hist. des Champ. 115; *Crypt. England.* Withering states that his third variety is not the *mouceron* of the French, though often used in France instead of that; “and as it may be procured plentifully, and its fine flavor will probably soon introduce it to our tables, particularly in cat-sups and in powder,” he takes much pains to guard us against errors. With., Ed. 4th vol. 218, 219.

Agaricus lateritius, Schoeff., 49; Berk., Crypt. Eng. 110. }
 “ *amarus*, Bull., Champ. 50, 562; Roques. }
 “ *auratus*, Fl. Danica, 820. }

Large Fasciculated Agaric. Stumps, trees; May and October; S. Carolina! to Penn.

Roques says it is acrid and very bitter. It does not affect animals in any sensible manner, but after some time they appear incommoded and refuse to eat. Some rejected them by vomiting, some were sick several days and finally died. Roques, Hist. des Champ. 234.

*Agaricus scorodoni*us, Fr., Syst. Myc. 130. { Small Garlic
 “ *aliatus*, Schoeff. { Agaric. Heaths
 and pastures. N.
 Carolina. Schw.

According to Persoon and Trattinnick, notwithstanding its strong garlic scent, it forms an article of food. Crypt. Eng.

Agaricus alliaceus, Pers., Syn. 375; Jacq., Roq. 236; Berk.
Fungus alpinus, Mich.

(*A. alliaceus* of Jacq. is found in North Carolina.)

Remarkable for its odor of garlic.

Agaricus porreus, Pers., Syn. 376; Roques, 236. }
 “ *alliaceus*, Bull., 158; D. C. }

This and the above are of equivocal qualities, like most of the section Mycene. Roques, Hist. des Champs. 237.

Agaricus esculentus, Wulf. } Small Esculent Agar-
 “ *clavus*, Schoeff. { ic. Oct. and May;
 “ *perpendicularis*, Bull., 422. } Carolina! to Penn.

Much eaten in Austria, where, in the beginning of April, large baskets of it are brought to market under the name of Nagelschwamme, which accords with Linnaeus' name, *A. clavus*. It has, however, a bitter, unpleasant taste. Crypt. Eng.

Agaricus frumentaceus, Bull. 571; Roques. Grows in woods, in spring.

It exhales an odor resembling the farina of grain, and may be placed among the alimentary species. Roques, Hist. 273.

Agaricus tenacellus. Dark Fir-Cone Agaric; N. C. Schw.
Taste, very pleasant.

Agaricus stypticus, Bull. Fries, 188. } Found in fall, in
" *semiopetulatus*, Shoeff. } woods, S. C.!

Cited among the poisonous species by Orfila. *Traité des Poisons*, iv. 426, and *Lec. de Méd. Leg.*, Pl. 184. It has an acrid taste, and when tasted produces constriction of the fauces, which alone indicates its deleterious qualities. Roques, *Hist. des Champs*. 171.

Agaricus prunulus, Scop., Fl. Carn. } Mouceçon.—
" *abellus*, Roques, 16, and Schoeff. } Woods and pas-
" *pallidus*, Sowerb. Fung. 143. } tures. June, Oct.

It has a firm, white, fleshy, delicious taste and odor, like that of fresh meal. Much esteemed on the continent of Europe as an article of food. *Crypt. Eng.* It is dried and much used in France. A large price is paid for those obtained near Baréges, in France. Roques gives much instruction respecting the various modes of preparation. *Hist. des Champs. Vén. et Suspect.* 245.

Agaricus squarrosus, Chevallier, Fl. Par. 211. } Found in
Berkley. } autumn, in
Agaricus squamosus, Bull. 266; Roques, 294. } woods. A. S.
" *floccosus*, Shoeff. 61. } of Pers. in N.
} Carolina.

According to Chevallier, it has the taste and odor of the edible species. Roques' *Hist. des Champs*. 293.

Agaricus rhodopolius, Fries. } Dull Rose-gilled
" *hydrogrammus*, Bull., Pl. Vén. } Agaric.

Odor strong, sometimes resembling that of nitric acid. *Crypt. Eng.*

Agaricus rimosus, Bull., Champ. 388; Roques, 273; D. C., Fl. Fr. 517. N. Carolina to Pa. Aurivenius Batsch., Cont. i. 107.

Prof. Balbis reports that a whole family was poisoned at Turin by eating this plant, if we can rely upon the identity of the species. Roques' *Hist. des Champs. Vén.* 273.

<i>Agaricus bombycinus</i> , Schoeff. <i>Fungus magnus</i> , Mich., Nov. Gen. <i>Amanita incarnata</i> , Pers., Syn.; Roques.	{	Silky wrapped Agaric. Inside of trees, stumps, on touchwood. Aug. Sept. S. Carolina! to N. C.
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It is considered eatable (Crypt. Eng.), Roques says, in Tuscany. Hist. des Champs. 359.

Agaricus ulmarius, Bull., Champs. 510; Fries, 186. Found in Oct. and Nov. on trunks of ash and black poplar. N. Carolina to Pa.

The flesh is firm and compact, but the taste is not agreeable. Roques, 171.

Agaricus tessellatus, Bull., Champ. 513; Roques. N. Carolina.

Flesh is white and coriaceous; but, notwithstanding the recommendation of Persoon, Roques does not think it prudent to make use of it. Hist. des Champs. 172.

Agaricus glandulosus, Bull. Champ. 426; Roques' Hist. 172. Carolina to Pa.

The flesh is white and firm, and of an agreeable odor and taste. Hist. des Champs, 172.

Agaricus ostreatus, Pers. Champ. 216; Jacq, Fl. Aust. Roques. Carolina to Pa.

Its flesh is white and of good taste, and is eaten in portions of Europe. Hist. des Champs, 173.

Agaricus cortinellus, D. C., Fl. Fr. Suppl. 541; Roques' Hist. 294.

According to De Candolle, it is compounded in Montpellier with other species, and eaten. Roques, 295.

<i>Agaricus sambucinus</i> , Cord., Champ. 199; Roques.	{	Grows in spring and autumn.
<i>Agaricus alborufus</i> , Pers., Champ. 191.	}	

It has a sweet taste and agreeable strong odor, and is much sought after by amateurs. Roques' Hist. des Champs, 305.

Agaricus Georgii, With. { St. George's Agaric, White-
Fungus esculentus, Räß., Syn. { caps. Meadows, woods, and
 { near buildings. Spring and
 { autumn.

Distinguished from the *A. campestris* by the almost white gills and the yellow stains when bruised. It is very generally rejected by house-keepers in the country as unwholesome, if not poisonous; but in London it is frequently sold under the name of white-caps. The flavor is far inferior to that of the common *mushroom*; its smell is strong and unpleasant, and it is little fit for making catsups, having but a small quantity of juice, and that not of a good color. Withering gives the description of one weighing 14 lbs. It is called in France *boule de neige*. Crypt. Eng. ii. p. 106.

Agaricus sulphureus, Bull. 168, 545; Roques' Fries, Syst. Myc. i. 110. Brimstone Agaric. Thick woods, among leaves. Autumn. N. Carolina. Schw.

It exhales a nauseous odor, and Roques places it among the suspicious or dangerous species. Hist. des Champ. Comest. 263.

Agaricus volvaceus, Bull. t. 262.
Amanita virgata, Pers., Syn.; Roques' Hist. $\left\{ \begin{array}{l} \text{Stove Aga-} \\ \text{ric. N. Caro-} \\ \text{lina. Schw.} \end{array} \right.$

M. Braconnot found in this species gelatine, albumen, and a large quantity of phos. potash, also adipocire, which shows something of an animal nature. Ann de Chim. MÉR. & DE L., Dict. de M. Méd. ii. 203.

Agaricus aquifolii, Pers., Champ. 206 ; Roques. Autumn.

According to Paulet, one of our best species; the flesh is white, fine, and of exquisite taste and perfume. Roques' Hist. des Champ. 263.

Agaricus sapidus, Poir., Encyc. Suppl. 420. } See *A. escu-*
 “ *griseus*, Pers., Syn. 445. } *lentus*.

The *Agaricus esculentus*, Pers. and *A. aureus*, Pers., Roques says is eaten in Germany. Hist. des Champ. 175. These plants are figured by Krapf. Schwam. 5.

is extensively cultivated, on which point M. Roques has some excellent information. The artificial production of the species, without the aid of spawn, has been frequently brought forward as an argument for the equivocal generation of fungi. But when it is considered how many millions of the sporules must be devoured, together with the herbage, by the animals whose dung is a principal material in the compost, much of the force of this argument vanishes. Crypt. Eng. vii. p. 107. These plants are frequently meteoric, and it is possible to increase particular species with certainty, by an ascertained mixture of organic and inorganic matter exposed to well-known atmospheric conditions. The process adopted by gardeners for obtaining this species proves this; a process so certain that no one ever saw any kind of agaricus produced in a mushroom bed. Lind., Nat. Syst. 331; Fries' Syst. Mycolog. The Rev. M. J. Berkley uses these words: "Too much caution cannot be used in the eating of *dark-gilled* agarics." See the distinctions pointed out in the little work entitled, the "Mushroom and Champignon Illustrated," by Mr. Sowerby.

According to Vanquelin's analysis, it consists of adipocire, albumen, a sugary matter, osmazome, an animal substance, insoluble in alcohol, fungin, and the acetate of potash. Ann. de Chim. lxxxv. 7; Mérat & De Lens, Mat. Méd. i. 102.

This plant attracted much attention among the Romans, by whom it was cultivated with particular care. Horace, and other writers, occasionally allude to it. M. Roques advises us to avoid those which have attained their full development, as they may produce more or less gastric irritation; he mentions his having treated a case, in 1814, of this kind, in which there were violent colic, spasm, and general weakness, by mint-water, laudanum, and demulcent drinks containing ether, which gave perfect relief. He recommends opium generally in these cases, sometimes giving milk and mucilage, not continuing the former where there is evidently visceral inflammation. Hist. des Champs. Ven. 209.

Agaricus fabaceus, Berkley.

Mr. Ravenel informs me that it is an alliaceous, edible mushroom.

<i>Agaricus atramentarius</i> , Bull.	} Inky Agaric. Fields, gar-
" <i>luridus</i> , Bolt.	
<i>Fungus multiplex</i> , Vaill.	

dens, wet places. Spring
and autumn.

It contains a black matter, which may be used as ink. Mr. Coste, of Philadelphia, who wrote a paper upon it, assures us, says Mérat, that his communication was written with it, as also the letter which was addressed to the Academy. *Diet. de M. Méd. Suppl.* vii. 17; *Comptes-rendus hebdomadaires de l'Académie des Sciences*, xiv. 667.

Agaricus callosus, Fr. Conic Dung Agaric.

Sowerby informs us that this species nearly proved fatal to a family in London. *Crypt. Eng.*

The taste of the *A. lateritius* and *fascicularis* is very bitter and nauseous.

Agaricus insidiosus.

Cited as poisonous by Orfila in his *Traité des Poisons*.

Agaricus campanulatus. See *A. alutaceus*.

<i>Agaricus zonarius</i> , Bull., <i>Champ.</i> 104; Roques;	} Found in woods in Autumn.
D. C.; <i>Fl. Fr.</i> 375.	
“ <i>flexuosus</i> , Pers., <i>Syn.</i> 431.	

An abundant corrosive milk exudes from it.

Agaricus urens, Pers., *Syn.* 333; Bull.

Poisonous. Orfila, *Traité des Poisons*, iv. 427; *Lég. de Méd. Lég.* Pl. 18, 1. It has a slightly acrid taste, and characters which exclude it from the number of eatable species.

<i>Agaricus hariolarum</i> , Bull. 585; Fries, <i>Syst. Myc.</i> i. 125;	}
Roques' <i>Hist.</i> 264.	
“ <i>sagurum</i> , Pers., <i>Syn.</i> 331.	

This plant was used by the astrologers, magicians, and charlatans, for certain purposes. It can be eaten without fear.

Amanita muscaria. See *Agaricus*.

There are no true *Amanitas* recognized in Mr. Berkley's *Crypt. Eng.*

The *A. venenata* is considered poisonous. Letellier states that he found in *A. bulbosa* and *verna* an active principle, called *amanatine*, to which is ascribed their narcotic property. See *Agaricus muscarius*.

The *A. caesaria* is considered eatable. *Amanita citrina*, stewed with carp and eaten, induced vomiting, followed by deep sopor, in three persons who recovered; another had true and violent cholera but also recovered; two who had partaken of the same meal, who were children, became profoundly lethargic and comatose; emetics had no effect, and death soon ensued without any other remarkable symptom. The individuals who recovered were not completely well till three weeks after the fatal repast. Orfila, Toxicol. Gén. ii. 433. This set of cases, remarks Christison, shows the tendency of the poisonous fungi to cause in one set of persons pure irritation, and in another pure narcotism. "On Poisons," p. 107; Orfila, Traité des Poisons, iv. 420.

Hypophyllum sanguineum. Puddock-stool.

We cannot ascertain the position of this genus, though they should perhaps be placed near *Amanita*.

Christison describes a case of poisoning from a plant to which he alludes under the name. He says that it is a small, conical fungus, well known to children in Scotland as the puddock-stool. This species seem to cause convulsions as well as sopor. A family of six persons, four of whom were children, ate about two pounds of it dressed with butter. The incipient symptoms were pain in the pit of the stomach, a sense of impending suffocation, and violent efforts to vomit, which symptoms did not commence in any of them till about twelve hours after the poisonous meal, in one not till twenty hours, and in another not till nearly thirty hours. One of the children, seven years of age, had acute pain of the belly, which soon swelled enormously; afterwards he fell into a state of lethargic sleep, but continued to cry; about twenty-four hours after eating the fungi the limbs became affected with permanent spasms and convulsive fits; and in no long time he expired in a tetanic paroxysm. Another of the children, ten years old, perished nearly in the same manner, but with convulsions of greater violence. The mother had frequent bloody stools and vomiting; the skin became yellow; the muscles of the abdomen were contracted spasmodically, so that the navel was drawn towards the spine; profound lethargy and general coldness supervened; and she, too, died about thirty-six hours after eating the fungus. A third child, after slight symptoms of amendment had shown themselves, became worse again, and died on the third day, with trembling, delirium, and convulsions. This patient, who

had taken very little of the poison, was not attacked till about thirty hours after the meal. The fourth child, after precursory symptoms like those of the rest, became delirious, and had an attack of colic and inflammation of the bowels, without diarrhœa; but he eventually recovered. The father had a severe attack of dysentery for three days, and remained five days speechless. For a long time afterwards he had bloody diarrhœa; and although he eventually recovered, his health continued to suffer for an entire year. Piecco, Mem. de la Soc. Roy. de Méd. 1780, 81, 355. These cases, adds Christison, illustrate clearly the simultaneous occurrence of narcotic and irritant symptoms in the same individual. "On Poisons," p. 707. Mr. Berkley includes no *Hypophyllum* in his Crypt. of Eng.

Hypophyllum nigrum.

Cited by Orfila (Traité des Poisons), on the authority of Paulet as poisonous. See Christison on Poisons, 701.

Hypophyllum maculatum, *H. tricuspidatum*, *H. albo-citrinum*, *H. cruz melitensis*, *H. pudibundum*, *H. pellitum*, are described as poisonous by Orfila. Traité des Poisons, iv. 420. Also in Leçons Méd. Legale, Pl. 14, avec les figures. descript.

<i>Cantharellus cibarius</i> , Fr., Syt. Myc. 318.	} Common Chantarelle. Woods. Summer and Autumn. S. Carolina! to Pa.
<i>Fungus angulosus</i> , Vaill.	
<i>A. cantharellus</i> , Linn.; Bull., Champ. 62.	
<i>Merulius cantharellus</i> , With.	

This species forms, according to Bulliard, a main article of food in some districts of Europe, though dangerous when eaten raw. It must not be confounded with the *C. aurantiacus*, a nearly allied species, which is reckoned unwholesome, if not poisonous. Crypt. Eng. Withering observes that the lovers of mushrooms may eat this with safety, though it is more tough and less highly flavored than either the *Ag. oreocides* or *A. campestris*. Pl. Rariores, 169. M. Roques also remarks upon the safety with which it may be employed. The flesh is white and milky, and of a piquant but agreeable taste. M. Roques furnishes much information respecting the mode of preparation. It is put up in jars for winter use. Hist. des Champs. 169. See Ravenel's Fungi Carolin. Fasc. II.

<i>Cantharellus aurantiacus</i> , Wulf. in Jacq. Coll. ;	} Fir woods and pastures. August and November.— N. C. Schw.
Fries.	
<i>Merulius aurantiacus</i> , Pers., Syn. 488.	
<i>Ag. cantharelloides</i> , Bull. 505.	
<i>va. a Merulius nigripes</i> , D. C. Fl. Fr. 243.	

The flesh is of soft consistence, and it has neither the odor nor taste of the true *chantarelle*, and hence not admitted among the eatable mushrooms. Roques' Hist. des Champ. 169.

<i>Merulius lachrimus</i> , Wulf.	} Dry-rot. S. Carolina, St. John's Berkley. On the inside of wainscot- ing, hollow trunks, ships, &c.
“ <i>destruens</i> , Pers., Syn. 496.	
<i>Boletus arboreus</i> , Sow.	

The only certain preventive of this dreadful pest seems to be free circulation of air and impregnation of the wood with a strong solution of corrosive sublimate. It is not improbable that white of egg may, in some cases, answer the same purpose. Our attention is called to a very curious article in the new series of *Ann. des Sciences Naturelles*, v. i. p. 30, by Dutrochet, on the origin of molds. Crypt. Eng. vii. p. 129; Lind., Nat. Syst. 333. In a letter to us from H. W. Ravenel, Esq. furnishing us with localities of fungi in this State, he says, “I laid down a new floor to my barn a few years since, and the greater part has been totally destroyed and reduced to powder. I have discovered this fungus as the cause of the mischief. I have also known other instances in this neighborhood (St. John's Berkley, S. C.).

<i>Merulius vastator</i> , Tode. }	} S. C. ! to Pa.
“ <i>aureus</i> , Fries. }	

A dry rot; also destructive to wooden buildings.

<i>Dedalea quercina</i> , L.	} Pennsylvania.
<i>Agaricus quercinus</i> , Linn. Succ. 1241. }	

This is susceptible of being transformed into amadou (tinder). Mérat & De L., Dict. de M. M. 213, 1.

<i>Dedalea suaveolens</i> , Bull.	}
<i>Boletus</i> “ Bull. t. 310. }	

Employed, since 1676, in phthisis. J. C. Enslin wrote a thesis upon the plant (Diss. Erlangiae, 1785). Auc. Journ. de Méd.

lxxv. 182. Two drachms of the powder are given morning and evening. Linnaeus assures us, remarks Mérat, that in Lapland it is regarded as an aphrodisiac. M. De Cand. made with it an electuary, of which from one scruple to a drachm was given in phthisis each day. M. & De L., Diet. de Mat. Méd. i. 636.

Polyporus versicolor, L. Fries, Syst. } Party-colored
Boletus " D. C., Fl. Fr. 301. } Polyporus. Com-
 mon on trees and sticks. South Carolina! to Pennsylvania.

This species is generally found grouped in clusters.

It is rather suspicious in character, and Plenck ranks it among the poisonous species. Roques' Hist. des Champ. 119.

Polyporus officinalis, Fries. }
Boletus lancis, Bull. } See *Boletus larycinus*.

Polyporus suarcolens, L.; Fries' Syst. My. 366. }
Boletus suarcolens, L. sp. Pl. } Sweet-
 " *salicinus*, Sow.

scented Polyporus. On willows. Found throughout Europe. also in New York. H. W. Ravenel.

Linnaeus says that it is regarded as aphrodisiac by the Laplanders (Persoon, Champ. Comest.). See also Diss. of Enslin, 1785; M. & De L., Diet. de M. M. Supplem. 1846, 116.

Polyporus suarcolens, var. *salicinus*, Fries' Syst. Mycol., Mr. Berkley describes as a variety under *P. salicinus*, Grev. M. Roques has some extended observations respecting its great value as an article of food. At different stages of its existence, according to Dr. Enslin, the odor and taste are different; the latter sometimes becoming bitter or acrid. Freschmann, chemist at Erlang, obtained by analysis an odoriferous, distilled water, slightly nauseous and bitter, but without any trace of volatile oil; 2d. A liquor of red tint, slightly acid and of the smell of soot; a black empyreumatic oil, fetid and with sulphurous concretions in it; 3d. An inodorous aqueous extract, of a slightly bitterish and salty taste; 4th. An alcoholic extract, more salt, more bitter, and more odoriferous than the aqueous extract; 5th. A crystallizable

salt of a taste analogous to that of sulph. potash; some lime; a silicious earth, and particles of iron.

This substance, more sweet than that from the *larch boletus*, has attracted the attention of physicians on account of its balsamic and excitant properties. It was employed in the seventeenth century in severe affections of the lungs; and both Sartorius and Boecler passed eulogiums on its value in advanced phthisis. Dr. Enslin, in his monograph, refers to it as a medicine administered with much success by Profs. Schmidel and Wendt, and he recapitulates many facts of great interest concerning it. As this paper is not well known, M. Roques furnishes a pretty full analysis of it.

A young man of twenty-one, having a cough and bloody expectoration which lasted for some time, and finally accompanied by fever, emaciation, copious sweating, swelling of the extremities, and diarrhœa, applied to Dr. Enslin, who gave him an electuary prepared with the powder of the polyporus and honey, in doses of a small teaspoonful four times a day. In a few months he was entirely well.

The second case was that of a man, thirty-six years of age, attacked with fever after the death of his wife, who died of phthisis. The fever assumed the character of a quotidian intermittent, terminating in a severe cough, with the expectoration of a disagreeable odor, continued insomnolence, total loss of appetite, swelling of the feet, diarrhœa, prostration for three months. The case was considered a desperate one, and after having used, without avail, other means of relief, recourse was had to the polyporus. In one month the recovery was complete; the fever, cough, and swelling of the extremities having entirely disappeared.

Case III. The individual who was the subject of the third observation was twenty-two years of age. He had become phthisical after having for some time an affection of the kidney, fever, a dry cough, a taste of blood in the throat, sometimes slightly acid, and showing itself after a repast. During the progress of the disease, the fever became more and more severe, the expectoration turning to a brick-dust color. As the gravity of the symptoms increased, they were attended with more difficult respiration, more marked cough, total loss of sleep, weakness of voice, and, lastly, purulent expectoration. Under the influence of quinine, the fever diminished sensibly; and the cough and hectic con-

dition were finally subdued by the employment of the powdered polyporus and sugar of milk, equal parts, in doses of a scruple four times a day. This was continued during several months, and was attended with complete success. Notwithstanding the number of remedies for consumption, this is confidently advised for meeting certain conditions. See Roques' Hist. des Champ. 117. The *Dædulia suæcolens*, Pers. (*Bol. suæv.* Bull.), is possessed of similar properties with the above, according to Roques.

<i>Polyporus squamosus</i> , Huds.	} Large, Scaly Polyporus.
<i>Boletus juglandis</i> , Schoeff. & Bull.	
“ <i>polymorphus</i> , Bull. t. 114.	

Decayed stumps of trees.
especially on ash. Sum.

This common but handsome species attains sometimes an enormous size. An instance is recorded in Hooper's Fl. Scot. of its measuring 7 feet 5 inches in circumference, and weighing 34 lbs. avoirdupois, and it was only three weeks in attaining these vast dimensions.

It exhales a strong and penetrating odor, and is eaten in some districts of France; but it is very tough and indigestible. See Roques, Hist. des Champ. p. 56; Crypt. Eng. ii. 135; Mér. & De Lens., i. 635. See detailed analysis by Bracon., Bull. de Pharm. vi. 135. M. Desvaux, a good naturalist, has eaten it with impunity after maceration. Journal de Botanique, tom. 3: Roques, *cit. sup.*

<i>Polyporus sulphureus</i> , Bull.; Fries, Syst.	} Sulphur-colored Polyporus. Trunks of trees. Common in Summer. S. C.! to Pa.
“ Myc. Bull., t. 429.	
<i>Boletus</i> “ “	

The flesh of this plant is yellow, and of a slightly acid taste, but is not considered eatable. Roques, Hist. des Champ. 120.

<i>Polyporus lucidus</i> , Leyss. Roques, Hist. des	} Lacquered Polyporus. On stumps. Aug. S. C. to Nor. States. (H. W. R.)
Champs.	
<i>Boletus</i> “ Hooker, in Curt. Fl. Lond.	
“ <i>variegatus</i> , Schoeff., t. 263.	

This is a “most beautiful and highly curious species, occurring in most parts of the world.” Hooker's Eng. Flora, 137. It

has been placed among the suspected species; though Bulliard does not attribute to it any bad quality. Roques, Hist. des Champs. 121.

Polyporus destructor. N. Carolina. Schw.

One of the pests of wooden constructions. Lind., Nat. Syst. 333.

<i>Polyporus frondosus</i> , Schrank, Fries. 97.	{ Small-headed, Branched Polyporus. On roots of oaks. Sept., Oct. S. Car. ! to Pa.
<i>Boletus ramosissimus</i> , Schoeff.	
<i>Agaricus intybaceus</i> , Ray, Syn.	

"Smell like that of wine. Esculent." This species, which is reported as excellent for food, sometimes attains a weight of 30 lbs. or more. Indeed, Clusius states that he had seen in Hungary masses three feet high. Woodward found a mass two feet broad. Crypt. Eng. 137.

The flesh is nearly white, firm, and milky, and of a savor and odor quite agreeable. Paulet lauds its good qualities very highly, though it incommodes those who eat much of it.

<i>Polyporus giganteus</i> , Pers., Syn. 521.	} Giant Polyporus. On logs. Oct., Jan. Pa.
<i>Boletus mesentericus</i> , Schoeff. t. 267.	

This plant attains an extraordinary size. It is eatable, but should be cooked a long time. Roques, Hist. des Champ. 123.

Polyporus betulinus, Bull. Birch-tree Polyporus. Northern States.

Taste and smell acid.

Polyporus tuber, Roques, Hist. des Champs. 123.

This plant is firm in texture, white, and of good taste, so that it is much sought after. Found in Angiers, in France. *Op. cit. sup.*

<i>Polyporus fomentarius</i> , Linn.	} Real Amadou- tinder. On oak, birch. S. Caro- lina ! to Pa.
<i>Boletus</i> " L., Fl. Suec. 1252.	
" <i>ungulatus</i> , Bull.	
" <i>applanatus</i> , Pers., Obs. Myc.	
" <i>ignarius</i> , Sowerb., Fung. i. 131.	

The best species for making amadou, and widely distributed over the globe. Thunberg appears to have met with it in Japan. Crypt. Eng. v. ii. p. 144. Mr. Wetherfield (Lond. Med. Gazette, Nov. 1841) recommends it as an elastic medium for applying support and pressure, and as a defense to tender and inflamed parts. Pereira, M. Med. & Therap. ii. 46. It does not lose its elasticity, like lint.

In the preparation of Amadou, the plant is stripped of its covering, and is beaten with a mallet to render it soft and supple, and then allowed to remain in water in which a little nitrate of potash has been dissolved. That intended for the use of surgeons is prepared in the same way, with the exception that it is not impregnated with the nitrous particles. It is not alone to its astringent power that it staunches wounds, but also to its capacity of absorption, its spongy nature, and the mechanical pressure it allows us to exercise. Roques, Champ. Comest. 118.

Polyporus ignarius, Linn.

Bolctus “ “ Succ.; U. S. Disp. } Hard Amadou

“ *ungulatus*, Pratt.

Polyporus. On willow, cherry, and plum trees. *P. ignarius* of Fries. Grows in St. John's, South Carolina. (H. W. R.), also in Pennsylvania.

The U. S. Disp. calls this the “Agaric of the oak;” but we find the synonyms above, which determine it to be a Polyporus. The best is that which grows on the oak, and the season for collecting it is August and September. It has neither taste nor smell. Its constituents, according to Bouillon-Lagrange, are extractive resin in very small proportion, azotized matter, also in small quantity, chloride of potassium, and sulphate of lime; and in its ashes are found iron and phosphate of lime and magnesia. It is prepared for use by removing the exterior rind or bark, cutting the inner part into thin slices, and beating these with a hammer until they become soft, pliable, and easily torn by the fingers. In this state it was formerly much used by surgeons in arresting hæmorrhage, being applied immediately, with pressure, to the bleeding vessel. It was at one time thought to check the hæmorrhage by a peculiar property; but it is now believed to act mechanically, like any other soft, porous substance, by absorbing the blood, and causing it to coagulate, and is not relied

on in severe cases. In the obstinate hæmorrhage which occasionally takes place from leech bites, especially those of the European leech, it may be used advantageously, though perhaps not more so than well-prepared lint. It has been sometimes applied to the purposes of a moxa.

When prepared agaric is first beaten, then steeped in a solution of niter or cannon powder, and afterwards dried, it becomes very readily inflammable, and is applicable to the purposes of tinder. Some recommend the substitution of the chlorate of potassa for niter. The preparation is usually known by the name of *spunk*, and is brought to us from Europe. Spunk, or tinder, the *amadou* of the French, is inflammable by the slightest spark. It is said to be prepared also from the *B. unguatus*, *fomentarius*, and *ribis*. U. S. Disp.; Pereira, M. M. 46. It is perceived, however, that this is identical with the *B. unguatus*. Ainslie, i. 5; Lind., Nat. Syst. 333; Mérat & De L., Dict. de M. Méd. 213; Ann. De Chim. li. 91; Auc. Journ. de Méd. xiv. 59, xv. 78.

In Franconia, they beat the inner substance into the form of leather, and sew it into garments. Wade's Pl. Rariores, 180.

Polyporus tuberaster, Roques, Hist. des Champs. }

“ *esculentus*, Mich., Gen. Pl. 131. }

Boletus tuberaster, Jacq., Collect. Sup. 8-9. }

This plant is found in Italy, and is much cultivated for its very delicate flavor and perfume. Roques, Hist. des Champs. 125. (See *Bol. tuberaster*.)

Polyporus ovinus, Schoeff., Fung.; Roques, Champ. }

Comest. }

Boletus albidus, Pers., Syn. 515. }

N. Car. }

These are grouped together, and are eaten in Germany. Roques, *op. cit. sup.* 125. The *Boletus albidus* of N., sufficiently distinct from this, Roques states has a sweetish taste and a well-marked odor, though he does not advise it for culinary purposes. Hist. des Champs. 150.

Polyporus carinthiacus, Jacq., Collect. 542. }

Boletus subsquamosus, Pers., Champ. 40. }

Found in Sweden, Austria, and Carinthia. Its substance is compact, and it is eaten in the last-named country. Roques, Hist. des Champs. 126.

<i>Polyporus umbellatus</i> , Roques, Hist. des	} <i>P. umbellatus</i> , Fr. In Pa. (H. W. R.)
Champs.	
<i>Boletus</i> " Schoeff., Fung. iii.	
& Pers.	
" <i>ramosissimus</i> , va. a., Jacq., Fl.	}
Aust. 2, 172.	

These two species or varieties are found in Germany. In grouping the Polypores, Roques advises us, as a general rule, to reject as articles of food those which have lateral pedicles, and never to make use of those whose texture is very coriaceous. Hist. des Champs. 126.

<i>Boletus granulatus</i> , L.	} <i>B. gran.</i> Fr. S. C. ! (H. W. R.), also in Pa. Milky Boletus. Pine lands. August, Sept.
" <i>lactifluus</i> , With., v. 4, 280.	
" <i>circinans</i> , Pers., Syn. 505.	

The Boleti, when wounded, heal in much the same manner as the flesh of animals. Edinb. Phil. Journ. 14, 369; Lind., Nat. Syst. 333.

Eatable, according to Persoon. Withering says that its flavor is like that of *Agaricus campestris*. *B. circinans* of Roques is certainly a different species. Crypt. Eng. 149. See also Roques, Hist. des Champs. 155.

<i>Boletus piperatus</i> , Bull., Champ. i. 451.	} Pepper Boletus.
" <i>ferruginatus</i> , Batsch, Cont. 281.	

Found in France. North Carolina to Pennsylvania. (H. W. R.)

"Taste remarkably acid and pungent." Grey. A small fragment, of the size of a nut, beaten up and mixed with a bit of bread, causes in an hour, says Roques, a painful sensation at the epigastrium, which after a while ceases, without further ill consequences. Hist. des Champs. 148.

<i>Boletus subtomentosus</i> , L., and Berkley's	} Subtomentose Boletus. Woods. Sum'r & Aut'mn. Found n'r Paris. S. C. ! to Pa. (H. W. R.)
Crypt. Eng.	
" <i>eupreus and crassipes</i> , Schoeff.	
" <i>communis</i> , Bull.	
" <i>chrysenteron</i> , Bull., 490, and Roques,	
Hist. des Champs.	

Taste not unpleasant. It is eaten in Germany, according to Trattinnick; but he does not give a very favorable account, and

recommends only young specimens, old ones having frequently proved injurious. M. Roques considers the use of it as hazardous. "Great caution would be required in distinguishing some states from *B. luridus*." Crypt. Eng. Its poisonous properties were known to the ancients. Pliny mentions that Annæus Serenus, the captain of Nero's guard, died from eating it. Roques, Hist. des Champs. Vén. 153.

Boletus albus, Pers., Champ. 233. }
Suillus esculentus, crassus, Mich., Gen. Pl. }

See *B. edulis*, to which the common name *Ceppatello buono* is applied among the Italians. It has the taste of a good mushroom. Roques, Hist. des Champs. 147.

Boletus felleus, Bull., Champs. 379; Pers., Syn. Found in woods, in August. S. C. to Pa.

It differs by the red tint of the pulp from the edible *Boletus*, and is excluded from the number of the edible mushrooms. Roques, Hist. des Champs. Comest. 149.

Boletus pachypus, Fr. Thick-stemmed *Boletus*. Pine woods. July and Sept.

Taste and smell like that of *Agaricus Georgii*; the yellow, expressed juice distinctly acid. Crypt. Eng.

Boletus cyanescens, Bull. 369; D. C. } White-seeded *Boletus*.
 " *constrictus*, Pers., Syn. 508. } Woody places. Sept.

Though in general we attribute poisonous qualities to those mushrooms which change their color upon being bruised, this should not be considered a rigorous rule, to be followed on all occasions. It is prudent, however, says Roques, to rank the azure *Boletus* among the suspected species. Hist. des Champs. Suspect. et Vén. 150.

Boletus luridus, Schoeff. }
 " *rubeolaris*, Bull. } Poisonous *Boletus*.
 " *bovinus*, Bolt. } Woods. Summer &
 " *perniciosus*, Roques, Hist. des } Autumn. N. C. to
 Champ. } Pa.
 " *marmoreus*, Roques, Hist. des }
 Champ. 141. }

Very deleterious. M. Roques mentions a case which came

under his own observation, of its bad effects, which, happily, yielded to opium. Crypt. Eng. ii. 152.

Sowerby says that the *B. bovinus* (Brown Boletus of Sow. 175) is a favorite food with the Russians and Poles, who have many ways of pickling and cooking it, and that he had got some from thence pickled and highly spiced. Wade's Pl. Rariores, 178.

Roques says that the *B. perniciosus* exhales a strong nauseous odor, analogous to that of sulphur, and that it contains a very deleterious resinous principle. By experiments made upon animals, Roques states that they reject a cake in which this deleterious fungus is mixed, even in small quantities. Cats and dogs suffer from vomiting, diarrhœa, and, sometimes, convulsive movements. A cat, which had taken near an ounce, died in twenty-four hours; the intestines being inflamed, and marked by brownish-colored spots. Food with which this plant was mixed, given by Drs. Pouget and Pêcharmant to another dog, produced suffering which lasted for some time, accompanied by a refusal of all kinds of nourishment. This animal seems endued with the power of overcoming the activity of these poisons; even the false orange and the bulbous agaric failing to produce a decided effect upon him.

A young surgeon eat two mushrooms seasoned with oil, the one being the ordinary *Boletus edulis*, with portions of the poisonous species. Some time after the repast, he felt intense heat in the throat and epigastric region, with vomiting, cough, and spasm, attended with much weakness. Being called to his assistance, Roques found the pulse hard and jerking, the skin burning, and the belly tumid and painful. He took a large quantity of sugar and water, and vomited a portion of the undigested mushroom. Opium was given in large quantity.

M. Roques recommends very highly the use of opium for the relief of pain following the use of the poisonous fungi, and to prevent the spread of inflammation.

Roques quotes from Prof. delle Chiage a case of a gentleman and his servant, who had eaten of these mushrooms, mixed with salad. The former fell down in a state of stupor, and his whole body was covered with pustulous eruptions. The use of acidulous food, refreshing drinks, or other remedies were employed, the membranes of the stomach becoming rapidly gangrenous. The domestic merely suffered from symptoms of irritation of the viscera.

The "Journal de Lot-et-Garonne" relates a case of an entire

family being poisoned by eating this plant. Roques, Champ. Comest. 145.

Boletus tuberaster, Jacq. (See *Polyporus*.)

Mérat, in his Supplém. vol. 1846, mentions this as the *Pietra fungaria* of the Italians. Jaspardini, in 1840, presented a memoir to the Academy on the subject, in which it is described as an enormous fungus, made up of heterogenous vegetable productions, and proposing to call it *Micelithe fungifera*.

They employ in China a boletus which is called Fo-lin, for fevers and eruptive diseases, on account of its sudorific powers: it is given in doses of 3 grains in a cup of water. *Op. cit.* 116.

Boletus annularius, Bull., Champ. 332; D. C. }

“ *annulatus*, Pers., Syn. 303. }

“ *luteus* of Schaeff., Fung. 114. }

De Candolle forbids the use of this plant as an article of food, in which Roques coincides. Hist. des Champs. 156.

Boletus cinereus, Pers., Syn. 504; Roques. } *B. floe.* N. C.

“ *fleccopus*, Fries, Syst. Myc. i. 373. } to Pa. (H. W. R.)

Although Micheli states that it has been employed for food in Tuscany, yet Roques advises us to avoid it, as its character is not well made out. Hist. des Champs. Vén. 159.

Boletus aereus, Bull. 583; Roques, Champ. Comest. 127.

This Boletus, found around Paris, and in the North of Europe also, is thought by some to be superior to the *B. edulis*, on account of its delightful flavor. The celebrated author, says Roques, of the *Almanach des Gourmands*, prefers it to all known mushrooms; and he passes his life in the woods to collect these divine cryptogams (*ces divins cryptogames à tête de nègre*), as he calls them. The authors of the *Champignons Comest. et Vén.* and of the *Physiologie du Gout*, can scarcely contain their enthusiasm in recounting the many admirable qualities of this delicious plant, among others, claiming for it the power of quickening the fancy, imparting superiority to the intellect, and a pleasing forgetfulness amid the gloom and despondency which follow adversity. “Que de bon mots, que d’heureuses saillies, lorsqu’ on les servait tout fumants sur sa table! Il faut avoir reçu le fœn sacré pour

comprendre un pareil enthousiasme," exclaims M. Roques, *op. cit. sup.* 128.

Boletus castaneus, Bull., Champ. 328; Roques.

Its taste is pleasant, and it is sometimes used as an article of food. Roques, *Hist. des Champ.* 147.

<i>Boletus edulis</i> , Bull., Champ. t. 60; D. C. Fl. Fr.	} Esculent
" <i>bulbosus</i> , Schoeff., 134.	
" <i>solidus</i> , Sow.	
" <i>bovinus</i> , With., 4, 273.	

Boletus, called in Italy Cepparello buono. Woods and pastures, under oaks; summer and autumn; N. C. to Pa.

Though neglected in this country, it appears to be a most valuable article of food, and is much eaten throughout Europe. It resembles very closely in taste the common mushroom, and is quite as delicate, and might be used with much advantage, as it abounds in seasons when a mushroom is scarcely to be found. Like that, it can be cultivated, but by a much more simple process, as it is merely necessary to moisten the ground under oak trees with water, in which a quantity has been allowed to ferment. This method is said to be infallible, and is practiced in France, in the Department des Landes. See Roques' *Hist. des Champ.* 16; *Crypt. Eng;* Mér. & De L., 635, 1; Descourt., *Champ. Comest. Suspect.*

This plant was well known among the Romans, and was called by Apicius, *Fungus farnei*.

M. Roques enters with more than ordinary zest into the descriptions of the various modes of preparing this plant for the table; and we refer the curious to the *Hist. des Champs. Comest. et Vén.* 136. "Voyez-ee gourmand, ee mycophile qui touche à la convalescence, et chez qui l'appétit se réveille !

Boletus squamosus, N. Roques, *Hist. des Champs.* Decayed trunks of trees, especially on ash.

Roques says that, as it changes color, he would advise that it should not be eaten. Berkeley, in the *Crypt. England*, 135, mentions, however, of *B. squamosus* of Huds., on authority of this writer, that it is eaten in parts of France.

In concluding his notice of this tribe of plants, M. Roques alludes to the general observations adduced by Paulet, to show

that all of them of which the pulp is green or blue, are very dangerous, and sometimes fatal. To prove this, he cites cases. Hist. des Champs. Vén. 161. Euripides wrote verses on the death of a mother and three children from eating the *Boletus* (Athen. *Deipnos*, t. 2, *op. cit.*).

Boletus Satanus. Found in N. Carolina (H. W. R.).

It is a poisonous species, the name having been given to it, Mr. Ravenel informs me, to "brand its diabolical attempt on the life of the botanist who first tried its eatable qualities."

Boletus larycinus, Berk. Larch Boletus. Sept.

Under the name *Boletus larycis*, the U. S. Disp., and Pereira, in his M. Med. ii. 46, notice a plant known as the *white agaric*, or *purging agaric* of medical writers. The nearest approach to this name is the one above, from the "Crypt. of Eng." The *Agaricus larycinus* appears to be an entirely different plant.

It has a sweetish, very bitter taste, and consists, according to Braconnot, of seventy-two parts of resinous matter, two of bitter extractive, and twenty-six of *fungin*, a nutritious, animalized principle, constituting the base of the fleshy substance of mushrooms. It contains also benzoic acid and various saline compounds. In the dose of four or six grains, it is said to act powerfully as a cathartic; but Lieutaud asserts that it may be given in the quantity of thirty grains or a drachm, without sensibly purging. Dict. des Drogues, i. 204. M. Andral has found it useful in checking the night-sweats of phthisis. De Haen had also used it for this purpose. He gives it in doses of eight grains, and gradually increases to a drachm during the day, without any observable inconvenience to the digestive functions (Journ. de Pharm. xx. 599). In this country it is scarcely employed, though we have met with it in the shops. U. S. Disp., 1223. Mérat & De L. also cite *B. larycis* of Jacq., Bull., Champ. 353, i. 296. Bouillon Lagrange has discovered in it benzoic acid, a free acid, an animal matter, ammoniacal salts, hydrochlorate of potash, sulphates, extractives, &c. Ann. de Chim. li. 75. This can be compared with that of Boulduc, in Mem. de l'Acad. des Sc. 1714, Dict. Some say that it arrests hæmoptysis. Under *Polyporus officinalis*, M. Richard gives the following deduction of M. Bisson (Archiv. Gén. de Méd., Janvier, 1833, p. 159). 1st. It may be employed with advantage in the nocturnal sweats from

phthisis: 2d. In doses of two, four, and five decigrams, administered for some days, it gradually dissipates them; 3d. In same doses, with extract of opium, it lessens the sweats and checks diarrhœa. Without opium, it ceases to be useful. Richard makes the *B. officinal* synonymous with *B. purgans* of Persoon. C. Elms. d'Hist. Mat. Méd. ii. 23. M. Andral has also employed the white agaric in cases like those of M. Bisson, having used from eight to sixty grains for the night-sweats with success, and without any thing untoward (see *B. larycis*, Jacq., Supplém. Vol. to M. Méd. de M. & de L., 117, and Journ. de Pharm. xx. 589; Bisson, Mém. sur l'emploi de l'agaric blanc contre les sueurs dans la phthisie pulm., Paris, 1832). M. Roques states, that, according to the analysis of M. Bonillon Lagrange and Bracconot, the *Boletus larycis* of Jacq., Miscell., contains a peculiar resinous substance, in great abundance and very acrid to the taste, also fungin, bitter extractive, animal matter, and different salts and free acids. He adds that, on account of its drastic properties and a very concentrated odoriferous principle, it is classed as a poison. When fresh, the emanations from it are dangerous, and taken in moderately small doses it acts violently on the digestive canal, and may produce serious consequences. The ancients attributed heroic properties to the white agaric. Vogel regarded it as a mild evacuant, given in doses of a drachm in six ounces of emulsion; but it acts in an uncertain manner, sometimes provoking vomiting, at other times alvine evacuations, and imparting a degree of heat and spasm to the whole digestive canal. Champig. Comest. et Vén. 117.

Boletus scaber, Bull., Champ. 319.

“ *borinus*, Schoeff., Fung. 104.

“ *procerus*, Bolt., 86.

“ *aurantiacus*, Bull., 489; Berk., Crypt. Eng.

} S. C. !
to Pa.

This is eaten in some of the provinces of France. M. & De L., i. 635.

Roques says it can be safely eaten while young, even in large quantity. It has neither the taste nor perfume of the true mushroom. Hist. des Champs. Vén. 152. He describes *B. aurantiacus* as a variety, which is eatable.

B. scopetino.

Eaten in Italy. This plant is figured by Micheli, t. lxx. F. 3.

Boletus hirsutus, Bull.

M. de Lastegrie extracted from this a brilliant yellow color. Bull. de la Soc. Phil. i. 23. It is supposed that the richest colors may be extracted from some species. De Cand., 342; M. & De L., Dict. de M. Méd. ii. 205.

Fistulina hepatica, With.

“ *buglusoïdes*, Bull.

“ *buglossum*, Fl. Dan. 1039.

Boletus hepaticus, Schoeff., t. 116; Roques.

Hypodris “ Pers., Myc. Eur.; and Roq.

nut, beech, and chestnut; Aug. and Oct.; *F. hepatic.* of Fr.; in S. C. to Pa. (H. W. R.)

See Dr. Greville's complete account of this curious fungus, in his Scot. Crypt. Flo. It is much esteemed in Austria as an article of food. The taste is rather acrid, but resembling somewhat that of *A. campestris*; but it is rather tough. It attains sometimes an enormous size. Crypt. Eng.; M. & De L., 635, 1; Persoon, Champ. Comest. 160.

Bolton says it is of the esculent kind, and that it tastes like lamb's flesh; “but how far it is to be trusted he is doubtful.” Sowerby observes, that it tastes like our common muskmelon, and some reckon it nearly as good. “It is replete with a blood-colored fluid.” Wade, Pl. Rariores, 177. M. Roques, in his Champ. Comest. et Vén. speaks very highly of this plant as an article of food. It is highly prized in many parts of Europe. *Op. cit.* 110.

Hydrium imbricatum, L.

“ *squarrosus*, Nat. Syst.

“ *squamosus*, Roques, Hist. des C.

} Scaly Hyd-
rium. Woods;
aut.; N. C. to P.

This plant, Roques says, has similar properties with the *H. repandum*.

Hydrium violaceum, Thore, Pers. Champ.

Dr. Thore testifies to the pleasant taste and odor of this species, although no experiments have been made with respect to its alimentary qualities. Roques, Hist. des Champ. 105.

Hydrium album, Pers., Champ.

Steccherino, o *dentino bianco*, Mich., Gen. Pl.

{ October
and Nov.

This is a fine large species, much employed in Italy, and

especially in Tuscany, as an article of food. Champ. Comest. et Vén. 106.

Hydrium auriscapium, L. Schoeff. Hairy Stalked Hydrium.
Grows on cones of fir, and regarded in Tuscany and Gascony as one of their best species. M. Roques, Hist. des Champ. 106.

Hydrium repandum, L., Succ. } Common Hydrium. Woods;
“ *flavidum*, Schoeff. } autumn; Mr. Ravenel has
seen specimens from S. C., N. C., and Ga.; grows in Pa. also.

The common hydrium is much used for food on the Continent, especially in Austria. The taste of the fresh plant is at first sufficiently agreeable; but it leaves an acrid, pungent sensation. The acrid qualities, however, seem to be entirely dissipated by heat. Crypt. Eng. vol. ii. 156. In reference to the *H. repandum* of L., Succ., M. Roques ascribes the observations of M. Descourtils, respecting its supposed injurious properties, to have been the result of his eating a different plant; this species, he says, being so commonly used in France, Germany, and Italy. This plant is dried by the natives of these countries for winter use. Champ. Comest. et Vén. 105.

Hydrium erinaceus, Bull. }
Heridium erinaceum, Pers., Myc. Eur. 153. } Hedge-
“ *commune*, Roques, Hist. des Champ. } Hog Hy-
trees, especially oak; “very rare.” Mr. Ravenel informs us } drium. On
that he finds *H. erinaceus* of Fr. in St. Johns, S. C.; grows in }
Pa. also (Schw.).

Esulent, according to Trattinnick and Roques.

Hydrium cyathiforme, Schoeff., Fung. 139. }
“ *concrescens*, Pers., Syn. 556. } Grows in
woods; Sept. and Oct.; N. Carolina.

The flesh is fibrous and coriaceous, and is used as food.

Hydrium coralloides, Scop. }
“ *ramosum*, Bull. } Coral Hy-
Heridium coralloides, Pers. and Roques' Hist. } drium. On fir,
“very rare;” found by H. W. R., in St. Johns, S. C., and Ga.; } beech, ash;
grows in Pa.

This, and the foregoing, are said to be as good food as the common mushroom. Crypt. Eng. ii. 157; Roques, Hist. des Champ. 108.

<i>Hericium caput Medusæ</i> , Pers., Comm. Clav.	} S. C. ! to Pa.
<i>Hydrium</i> " " D. C. Fl. Fr. 281.	
<i>Clavaria</i> " " Bull., t. 412.	

The taste of this is very agreeable, and it is much eaten in Italy, and to a certain extent, in France. Roques, Hist. des Champ. 107.

Clavaria cinerea, Bull.

According to M. Fries, *C. cinerea* of Greville, though very dissimilar in appearance, is a variety of the *C. coralloides*.

It is much employed as an article of food in Normandy and Franche Comté. All the clavarias are eatable, except one or two of a coriaceous nature, or which are too small to be cooked. Roques, Champ. Comest. 83.

<i>Clavaria amethystina</i> , Bull.; Nees.	} Amethyst Clavaria.
<i>Ramaria</i> " Holmsk.	

Among leaves under trees; Ang. to Sept.

The plant is eatable, and very much prized. Roques, Hist. des Champ. Comest. 85; Hooker's Crypt. England, 174.

<i>Clavaria fastigiata</i> , Linn., Sp. Pl.	}
" <i>pratensis</i> , Pers. and Berk. Crypt. Eng.	
<i>C. pratensis</i> , Fr. in N. Carolina.	

This also is alimentary, and much eaten in Germany under the name *Ziegenbart*. Roques, Hist. des Champ. 85.

<i>Clavaria botritis</i> , Schoeff., Fung. t. 176.	} <i>Clav. botritis</i> of P.
" <i>plebeia</i> , Jacq., Misc.	

Commonly used in parts of Europe as an article of Food. Roques, Champ. Comest. 85.

Clavaria crispa, Jacq., Misc. Austr. 2, 100.

This clavaria is eaten in Siberia and Alsatia. Roques, Champ. Comest. 85.

Clavaria pistillaris, L.; and Bull., Champ. 244. }
 " *Herculanea*, Sow. }

Large Brown Clavaria. Shady woods; *C. p.*, Fr. N. Carolina.

Eaten in northern countries. Roques.

Clavaria coralloides, L. and Bull. } Coral Clavaria.
 " *flava*, Tarber. }

The flesh is white, coriaceous, and nourishing. Richard, Elems. d'Hist. Nat. Méd. ii. 20. It furnishes a very healthful and digestible nourishment. All the varieties are used as articles of food; and it is preferred, as it bears no resemblance to the poisonous fungi. In countries where the plant grows in abundance, they preserve it for winter use by slight boiling, and then macerating in vinegar. Roques, Champig. Comest. et Vén. 83.

Bulgaria inquinans, Pers. } Pitch Black Bulgaria. On old
Peziza nigra, Bull. } stumps and trees. *B. inquinans*,
 Fr.; N. C. to Pa.

M. Richard states, that the *P. nigra* furnishes, on chemical analysis, bassorine, gum, and fungic acid in a free state (from Ann. de Chim. Méd. 79, 87). Elems. d'Hist. Nat. Méd. ii. 37.

Morchella deliciosa, Fries, Syst. Mycol. }
Fungus cavernosus, Weim., Herb. 333. }

This is regarded as even more sapid and delicate than the common Morelle. Roques, Champ. Comest. 91.

Morchella semilebra, Dec., Fl. Fr. }
Hedrella hybrida, Sow., Fung. } Long-Stemmed
Phallo-boletus esculentus, Mich., Gen. Pl. } Morelle. Woods;
Phallus esculentus, V. 2. With. } spring.

This plant has a pleasant taste, and resembles the eatable morelle. It is much used in various parts of Europe, being put up in olive oil to render it more tender. Dried with care, the perfume of the fresh plant is well preserved. M. Roques, in his Champ. Comest. et Vén., with the zest of an enlightened gastronome, instructs us in the most approved ways of preparing and dressing these and other fungi. See *op. cit. sup.*

Morchella esculenta, Linn.

Helvella " Sow.

Phallus " Linn., Succ.

} Common Morell. Woods

and orchards; found in St. Johns, by H. W. R.; grows also in Northern States.

Esteemed everywhere as a valuable article of food. Crypt. of England, 182. They are sometimes dried for winter. Richard, Elems. d'Hist. Nat. Méd. Dried, it will keep for many years. Wade's Pl. Rariores, 182. M. Roques is quite enthusiastic in his praise of this delicious mushroom. Champ. Comest. et Vén. 91.

Helvella Acaulis, Pers.

Employed in Russia, in strumous engorgements, lymphatic tumors, and ulcers. Pallas, Voyage, 1, 51; M. & De Lens, iii. 474.

Helvella crispa, Scop.; Fries, Syst. Myc.

" *mitra*, Roques.

" *esculenta*, Pers.

} Pallid Helvella.
Woods; autumn;
S. Carolina!

Esculent. Esteemed as an article of food. Eaten in Provence. De Cand., Essai; Hooker's Crypt. Eng.; Mérat & De Lens. All the varieties are eatable. Roques, Hist. des Champ. 86.

Helvella elastica, Bull., Champ. 242.

" *albida*, Pers., Syn.

" *fuliginosa*, Schoeff.

}

This fragile and transparent species is much valued as an article of food. Roques, Hist. des Champ. 87.

Vibrissea truncorum, A. & S.; Fr.

Leotia clavus, Pers.

} Golden Vibrissea. N.
Carolina. Schw.

According to Fries, when taken from the water and exposed to the rays of the sun, though at first smooth, it is soon covered with white, geniculated filaments, which start from the hymenium, and have an oscillating motion; while this takes place, a strong scent of garlic is emitted. Crypt. Eng.

Dacrimices moriformis, Smith.

Tremella

"

Eng.

} Mulberry Dacrimices.

} Grows in S. C. (H. W. R.)

When dried between paper, a violet stain is communicated to whatever this plant touches. Sm., l. c.

<i>Spermatia clusus</i> , D. C. Fr.	} Common Ergot. "Diffused throughout the whole of Great Britain." W. S. A.
<i>Sphacelia segetum</i> , Kl., Fung. Germ.	
" <i>Secale cornutum</i> " of Pharm.	
<i>Acinula clusus</i> , Lond. Pharm.	

"Produced within the seeds of various gramina, as secale, agrostis, dactylis, festuca, elymus," etc.

Not less celebrated on account of the dreadful diseases which it produces, when abounding among corn, than for its invaluable uses as a medicine, arising from its extraordinary specific action on the uterus. It appears to be only a diseased state of the grain, and has scarcely a sufficient claim to be admitted amongst fungi as a distinct genus. The external coat is subfarinaceous. Crypt. Eng.

Much discussion has arisen as to whether ergot is a morbid growth, a parasitic fungus, or the seed perverted in its nature by a fungus. De Candolle believed it to be the second; and M. Le Veille, in a Mem. published in the Ann. Linn. Soc., Paris, 1826, concurred in the third opinion respecting it. Mr. Quekett, of London, has investigated the subject with much care; and he confirms the general view of the nature of ergot entertained by M. Le Veille, but he is led to a different conclusion as to the character of the parasitic plant. He believes that the germs of the fungus (*Ergotatia abortifaciens*) emit their filaments through the tissue of the ergot, when young and tender, and that, as this increases, it is made up partly of the diseased structure of the grain, and partly of the fungous matter. This microscopic fungus is found in various other parts of the plant; and it is asserted that the sporidia, or white dust, upon the surface of ergot, if applied to the seeds of certain graminaceæ before germination, or sprinkled in the soil at the roots of the plants after they have begun to grow, will give rise to ergotized fruit (see Am. Journ. Pharm. xi. 116, 237; Med. Exam. N. S. i. 62; U. S. Disp. 313; see besides, Smith's Inquisitio in Secale Cornutum. Commentatio præmio, &c. Annalized in Annalen der Pharm. i. 129; also Bauer, in Linn. Trans., 1840, xxxiii. 453; Wright, in Edinb. Med. and Surg. Journ. lii. 306). It is stated that the substance is much more energetic when collected before than after harvest. It should not be collected until some days after it has begun to form; as according to M. Bonjean, if gathered on the first day of its formation, it does not possess the poisonous properties

which it exhibits when taken on the sixth day (Pharmaceut. Trans., 1842, Jan., from Journ. de Chim. Méd.).

The ergot attacks rye chiefly in damp seasons, and in moist, clay soils. According to the statistical researches of the *Abbé Tessier*, who was deputed by the Med. Society of Paris, to investigate the *cause* of the extraordinary prevalence of the ergot, in 1771, in the district of Sologne, in France, he attributes it to *dampness* (Mém. sur le Mal du Seigle appelé Ergot, Hist. de la Soc. Roy. de Méd. i. 427). The same connection between moisture and the development of the ergot has been “repeatedly traced” in other parts of France, as well as in Germany (Robert’s paper, in Rust’s Magazine, 25, 20). According to the experiments of Wildenow, it may be brought on at any time by sowing the rye in a rich, damp soil, and watering the plants exuberantly in warm weather. (Hecker, i. 240); Christison, 712.

Bread which contains it is defective in firmness, liable to become moist, and cracks and crumbles soon after being taken from the oven (Robert, in Rust’s Magazine, 28).

From the experiments of Drs. Wright, Wiggers, and Taddei, ergot has been found injurious to animals. Its first effects in them are giddiness, dilated pupil, and palsy, and subsequently diarrhœa, suppurating tumors, scattered gangrene, and “sometimes dropping off of the toes.” Sparrows were killed by six grains in six or seven hours (Taddei, An. Univ. di Med., 1839, iv. 12). From Dr. Wright’s experiments, it appeared to have no power in inducing miscarriage in the lower animals (Edinb. Med. and Surg. Journ. liii. 29). Christison, on Poisons. Prof. Fee, as late as 1843 (in the Mem. de la Société de Mus. d’Hist. Nat. de Strasbourg), has thrown much light on the structure and growth of ergot. “Cette production est à la fois formée par le grain malade et par un champignon parasite qui en occupe le sommet.” Richard.

Ergot, analyzed by Vanquelin (Ann. de Chim. et de Phys. 3, 337), gave two coloring matters, one of a yellow color, soluble in alcohol, the other a violet, analogous to that of the orseille, but insoluble in alcohol; 2d. An abundant oily substance; 3d. An undetermined acid, probably phosphoric; 4th. Free ammonia; 5th. A very abundant vegeto-animal substance, prone to putrefaction; and therefore neither amadou nor sugar nor mucilage nor gluten. The grains of ergot, by later analysis of Wiggers, furnish a peculiar heavy oil, a peculiar fatty matter, cerine, *ergotine*, osmazome, a peculiar sugary substance (*mannite*, Liebig), a

gummy, extractive matter, albumen, fungin, and phosph. of lime and potash. Ergot does not contain any alkaloid. Its action on the uterus is due to the "*ergotine*," see M. Bonjean's investigations. Richard, *Elém. d'Hist. Nat. Méd.* 1849. See also, M. Robin's later investigations in 1853.

Phallus impudicus, L. } N. C. to Pa. Schw.
 " *fatidus*, Sow. }

From a paper by Dr. Radley, in London Lancet, we learn that the *Phallus* was an object of superstitious worship in the earlier ages of the world, in India and in Egypt; mentioned, also, by O'Brien in his elaborate work on the "Round Towers of Ireland." Dr. Radley desires to impress upon his readers that the plant possesses "great remedial power to allay pain in the lumbar region," which he considers equal to that of morphine. To Mr. Hele, surgeon of Ashburton, he is indebted for the first hint of the value of this species of fungus as a diuretic in dropsy, which Mr. R., upon experiment, could not confirm, though it led him to ascertain its use in allaying renal and other pains in the loins. He reports four cases in which he employed the tincture of the plant, in teaspoonful doses, several times a day. The secretion of urine did not increase under its use. In case 2d, he gave twenty grains of the powder made into as many pills, with thin mucilage of acacia—one taken thrice a day—producing a good deal of red gravel with the discharge, which he attributes to its allaying spasms of the kidneys. In case 3d, there was no diminution of the anasarcons swelling, though a painful affection of the nerves springing from the lumbar regions forming the anterior crural was relieved, and affording the patient the most signal case.

In case 4th, one half the same quantity taken in the same way was equally serviceable.

He advises that it be dried on an iron plate, which deprives it of the very disagreeable and nauseous odor. See paper in London Lancet by W. C. Radley, M. D.

Phallus fatidus, Lam. } Stink Horn—Stinking Morel.
 " *impudicus*, Linn. }

In curious structure, says Greville, in his Scottish Flora, iv. 213, it yields to none of its order. Bulliard affirms that the volva, in bursting, will break a glass vessel in which it is inclosed. In six hours it attains an elevation of six inches. Flies are so fond

of the slimy matter, that it is always greedily devoured. The Flora Londinensis states that they are not attracted by it to deposit their eggs, as in the *stapeliae*. Greville confirms the assertion of Withering, that "such as have the courage to smell this matter closely will find it much less disagreeable than at a distance, for it then seems to have a slight pungency, like that of volatile salts. It is used in Holland to make poultices. Greville, 4, 213.

Phallus caninus, Huds. Fr. } Red-headed Stink Horn.—
 " *inodorus*, Sow. } Woods and hedges. Autumn.

This, like *P. impudicus*, when placed in the egg state in a box over night, if sufficiently advanced, will be found perfectly developed in the morning.

Tremella auricula Judaea, L. } Jew's ears. Grows
Peziza " " L., Sy. Veg. } on trees.

The Russians make a kind of *eau-de-vie* of this plant by its power of fermentation. Discours sur la Botan. by Troufflot, Prof. in Central School at Nievre, 1794. Mérat suggests that a similar use might be made of many more mushrooms. Supplem. vol. 1846, p. 712.

Eridia auricula Judaea, Linn. } Jew's ear. S. C.
 † *Peziza* " " Linn., Sy. Veg. } et ubique. H. W. R.

It is stated in Mér. & De L. that the Russians make *eau-de-vie* of the *Pez. auric.* Linn. Dict. de Mat. Méd. ii. 205.

Tuber cibarium, Sibth. ; Fr., Syst. Myc. } Mr. Ravenel
 " *humale*, Mich., Gen. Pl. } has not seen

Lycoperdon tuber, Linn., Spec. 1653 ; Roques. } it in S. C. ;
 though in a letter to us he states that Schweinitz inserts it in his Syn. U. S. Fungorum upon the authority of Dr. Muhlenberg. "He says he was told there was an old hunter who had a dog trained to find them in the neighborhood of Narraganset, Pa."

Buried in the soil of woods, especially beech woods.

There are several varieties, differing in color, of which the black is the most celebrated. They grow together in groups. Those growing near the oak are the best, and are best collected in December.

Truffles are much sought for as a luxury, and are hunted by dogs trained for the purpose, or by swine. Nees Von Essenbeck

relates an instance of a poor, crippled boy who could detect *truffles* with a certainty superior even to that of the best dogs, and so earned a livelihood. They have been successfully cultivated by Bornholz. See Roques' Hist. des Champ. They are preyed upon by a species of *Leiodes*. Crypt. Eng. 228. According to Bouillon-Lagrange they contain an acid liquor, a black oil, a heavy matter, albumen, carb. of ammon. Cit. in Roques' Hist. des Champs. 389. The Romans sent to Africa for truffles.

“ * * Tibi habet frumentum, Alledius inquit,
O, Libye! disjunge boves, dum tubera mittas.”

Juv., Sat. v.

The Count de Noé has communicated to the Horticultural Society a plan by which we obtain them by planting the skins of the truffles, which are followed in the second season by the plants.

Tuber moschatum, Bull., Champ. 479; D. C., Fl. Fr. Musk-scented Truffle. Grows beneath the soil.

When fresh the flesh is soft, and it exhales a strong odor, like musk. Although it may be used without inconvenience, yet it is not very agreeable. Roques' Hist. des Champ. 416.

Tuber griseum, Pers., Syn. 127; Roques' Hist. Truffle Grise, De Borch. Found principally in Piedmont and in France.

It possesses a fine delicate taste; and some amateurs prefer it to the black truffle of Perigord, on account of the lively and penetrating odor which it exhales. George IV. and Louis XIV. are both said to have been very fond of this species.

Tuber nigrum, Desfont., Fl. Atlant. Q. 436.

This plant is very delicate, and is good as an article of food.

<i>Lycoperdon giganteum?</i> Batsch.	}	Large puff-ball, sometimes many feet in circumference. N. C. to Pa. Schw.
“ <i>Protens.</i>		
“ <i>pumillum.</i>		
<i>Bovista gigantea</i> , Nees.		

It was formerly used as a styptic; and recently M. Chatenay, a pharmacist at Berne, has found the powdered plant to arrest hæmorrhages on the spot by its being inhaled into the lungs. The plant also possesses a narcotic quality; and hence the smoke was employed for stupefying bees, the plant having been prepared by drying in an oven.

Dr. Toll employs a syrup made with it, to arrest the pains

caused by renal calculi (Abeile Méd. 1845). Supplem. vol. to Mér. & De Lens, 1846, 442; Pereira, Mat. Med. ii. 47. In a work on homœopathy, by Dr. Beauvais, 639 symptoms are said to be produced by *L. borista*.

Plenk (Bromatologia, p. 88) mentions that it is used as an article of food in Italy. When its substance commences to soften, it becomes dangerous. Roques' Hist. des Champs. Vén. 374; M. & De L., Dict. de M. M. i. 213. Fries mentions that in individuals injured when very young by the reaper's sickle, a pale, membranaceous web is formed from the *capillitium* which fills up the wounds, forming septa, which, if the wounds are numerous, divide the cavity into chambers; and from this he infers the mode in which the septa in scleroderma are formed—"from the contraction of the inner mass, and in consequence the insinuation of delicate white webs in the interstices formed." Crypt. Eng. This may teach us with respect to the origin of vegetations and malignant growths in man.

Lycoperdon caelatum, Bull.

" *borista*, Pers., Syn.

" *gemmatum*, Schoeff., Fung. 189.

{ Embossed puff-
ball. S. C.!

This is sometimes converted into amadou. M. & De L., i. 213.

Lycoperdon corium, Guers.

This plant is sometimes used as amadou.

Lycoperdon solidum, L.

In Virginia, according to Clayton, a sort of bread is made of this plant, which is called tuckatoo (Flora Virgin. 176). Supplem. vol. to M. & De Lens, 442.

Lycoperdon carcinomale, L.

Used at the Cape of Good Hope in cancer (Thunberg, Diss. Acad. i. 274). M. & De Lens, iv. 165.

Scleroderma verrucosum, Bull.; D. C. }

Lycoperdon " Bull. }

{ S. C. ! to Pa. Schw.

This is said to be aphrodisiac. According to Vaillant, it is fatal in its effects when taken internally. The powder keenly irritates the eyes and nose. Roques' Hist. des Champs. Vén. et Suspects, 375.

Elaphomyces granulatus, Alb. and Schw. } *E. cervinum*.—
Scler. cervinum, Persh. and Roques. } In Pa.

It is stated in Mér. & De L. that the *S. cerv.* is an aphrodisiac. It exhales a very strong odor, like that of the spermatic fluid; and charlatans have prepared a tincture which is vaunted as a remedy for impotence.

Sphaeria entomorphiza, Dicks.; Fr., Syst. Myc. Round-headed insect Sphaeria. On dead larvæ and pupæ of insects. "Very rare." N. C.

My friend, H. W. Ravenel, Esq. of St. Johns, S. C. has in his collection several fungi, all of which are attached to the bones about the neck of the insects, generally a caterpillar or common white grub. From a letter just received (April, 1852) he informs me that he has discovered three new species of these insect sphaeriæ in St. Johns, S. C. under the following names: *S. insectivora*, Rav.; *Hippocra Ravenellii*, Berk. and Curt.; and *S. Santensis*, R.

The filament of this species, Mr. Berkley says, was found by Dr. Hooker attached to a caterpillar—in his own specimen they were attached to a chrysalis. The *perithecia* were completely sunk in the flesh.

Reticularia maxima, Fr. } Large *Reticularia*. On
Lycopodium echiniformis, Sow. } trunks of felled trees. Pa.

A quantity of the sporidia subjected to a considerable heat, by Dr. Wollaston, formed a phosphoric glass. Crypt. England.

Clathrus cancellatus, Linn., Spec. 1648; Roques, 371. }
 " *volcaceus*, Bull. 441. }
 " *ruber*, Mich. Gen. Pl. }

We observe in the Crypt. England that all the species of *Clathrus* are under *Trichia*.

The flesh of this singular plant is very fetid and deliquescent, exhaling an odor so infectious as to force naturalists to purify the chambers in which it is carved. It must be placed among the deleterious species.

A young person having eaten a bit of it, after six hours suffered from a painful tension of the lower stomach, and violent convulsions. He lost the use of speech, and fell into a state of stupor, which lasted for forty-eight hours. After taking an emetic he threw up a fragment of the mushroom, with two worms, and mucus tinged with blood. Milk, oil, and emollient fomentations, were then employed with success.

Aspergillus glaucus, Lk.

Mucor " Linn. Sp. Pl. }

Monilla glauca, Pers.

Blue mold. S. Caro-

lina! On various decaying substances, as lard, bread, cheese.

One of the most common molds, and always unacceptable, except upon cheese, which is valued when attacked by it. Crypt. Eng. ii. 340.

Pennicilium glaucum et roseum.

These varieties of mucedonous vegetables are found to be developed in bread which proves poisonous; their presence is supposed to account for its deleterious effect. The effects produced by rye bread in which these were found, were redness of the features, dry tongue, frequent weak pulse, violent colic pains, urgent thirst and headache, and subsequently vomiting and diarrhoea, alternating with great exhaustion and sleepiness (Guérard, in Annales d'Hygiène Publique, xxix. 35). Christison on Poisons.

Oidium crysiphoides, Fr.

Sporotrichium macrosporum, Grev., Fl. Edin. }

Torula botryoides, Corda.

Mildew Oid-

ium. On leaves of various plants. Common.

Very destructive to peach trees, cabbages, &c. In the former case its progress is sometimes stopped by powdering the leaves and fruit with sulphur. Crypt. Eng.

Podisoma macropus, Schweinitz. Grows on cedar (*Juniperus*) in St. John's, Berkley, S. C. Cedar apple. April.

This plant, which exists in the form of a ball on cedar trees, is supposed to possess considerable power as an anthelmintic.

Fusisporium atrovirens, Berk. Dark green Fusisporium. Summer.

This is at least one cause of the mildew which is so destructive to onions just before they arrive at perfection.

Torula cerevisiæ, Turpin. }

Mycoedema " Desmaz. }

Yeast.

Turpin, who spent a night in a brewery for the purpose of examining the vesicles, found that on each two buds are developed, each of which becomes a vesicle, which remains attached to the parent one. If these are organized beings, it has been suggested that the process of vinous fermentation is the immediate consequence of their vegetation. "When placed in a saccharine fluid they are supposed to grow at the expense of the sugar, which is

partly converted into alcohol, while the plant gives out carbonic acid. According to this view, therefore, fermentation is the consequence of a vital act." Pereira, M. M. It is administered internally, as a tonic and antiseptic, in typhoid fevers. Dr. Stoker (*on continued fever*, 121, Dublin, 1829-30) states that it usually acts as a mild laxative, improves the condition of the alvine evacuations, and is more effectual in removing petecchiæ and black tongue than any other remedy. It is admissible where cinchona and wine cannot be given, on account of the inflammatory symptoms. Dose, two tablespoonfuls every third hour, with an equal quantity of camphor mixture. Yeast poultices are well known as antiseptics. Enemata of yeast and assafetida are said to be effectual against typhoid tympanitis. Pereira, M. M. ii. 58.

<i>Puccinia graminis</i> , Pers.	} Mildew. S. C. et ubique. H. W. R.
<i>Uredo frumenti</i> , Sow.	
<i>P. arundinacea</i> , Johns., Fl. Berw.	
Most injurious to corn.	
<i>Uredo carbo</i> , De Cand.	

It attacks the ova of plants and the glumes of the graminæ, and prevents their development (Mem. de la Soc. Roy. de Méd. 178, 364). N. E. Tscherner, Memoir on Rust, in the Mém. de la Soc. Econ. de Berne, 1764, 27; Chantrais' Obs. upon mildew and its acid, in Soc. Philom. viii. 86; Res. upon the cause and progress of blight, in Mem. de Mith. et de Phys. iii. 68, from M. & De L. Mat. Med. vi. 809.

<i>Uredo segetum</i> , Pers.	} Smut. On wheat, barley, oats, etc. S. C. et ubique. H. W. R.
<i>Ustilago</i> " Ditm.	
<i>Reticularia</i> " Bull.	
Very common and destructive.	

<i>Uredo caries</i> , Dec. Grev., Fl. Edin.	} Bunt. On wheat.
" <i>sitophila</i> , Ditm. St. Deutsch.	
<i>Caoma sitophilum</i> , Lk.	
Very common.	

It is exceedingly fetid when crushed. Highly injurious, as the whole sample is spoiled by the bunt corn. Crypt. Eng. The seeds, if planted, will reproduce it. It is not injurious to the health of man; as M. Cordier took, one day, one drachm in a glass of water, and, the day after, three drachms, without experiencing any injurious effect (Journ. Gén. de Méd. lxxxvi. 98). M. & De L. Diet. de M. Méd. vi. 809.

According to the observations of Mr. Kirby (see Linn. Trans. vol. vi.), the gentlemen of England, to guard their seeds against the encroachment of the *pepper brand* or *bladders*, dress them with a livium of wood-ashes and urine, salt and water, lees from the soap-boilers, urine and cheese-whey; and he believes that all the farmers dry their seeds with fresh-slacked lime. From whence it would appear that the disease originates from the adhesion of the seed or dust of the *brand* to the seed of the wheat. Fresh slacked lime will sometimes injure the seeds. Old wheat used for seed, it has been observed, is not subject to the brand.

For smut, Mr. Gordon recommends, in the Bath papers for 1799, vitriolic acid. He suffers the seeds to remain in the steep for twenty hours, using one gallon of acid to thirty of water.

Uredo rubigo, Dec. } Rust. On grasses and corn. S. C. !
Ceoma " Lk. } et ubique.

Common, but not so injurious as the true mildew, *Puccinia graminis*.

Uredo suaveolens, Pers. } Sweet-scented Uredo. "On *Oni-*
Aec. cardui, Sow. } *cus arvensis*.

Flies, according to Sowerby, often gorge themselves with this plant, and are killed. Crypt. Eng.

Mucedo.

The genera *Mucedos*, *Mucors*, *Byssi*, &c., constitute mildew, mold, &c.

It is deserving of particular inquiry, how it is that the growth of the minute fungi are prevented by any kind of perfume or essential oil. Even the small amount in Russia leather being sufficient. Ed. P. J. 8, 34; Lind., Nat. Syst. 333.

Rhizomorpha.

I am unable to ascertain where it should come.

This genus, which vegetates in dark mines, far from the light of day, is remarkable for its phosphorescent properties. In the coal mines near Dresden the species are described as giving those places the air of an enchanted castle; the roofs, walls, and pillars are entirely covered with them, their beautiful light almost dazzling the eye. The light is found to increase with the temperature of the mines. Ed. P. J. 14, 178; Lind., Nat. Syst. 333.

Achorion Schonleinii.

We do not know where to arrange this genus, belonging to

Hyphomycetes of Richard's *Elém. d'Hist. Nat.*, which contain species which the recent discoveries of Lebert and Robin have shown to exist in certain cutaneous diseases. Richard says that beyond any doubt certain cryptogamia do grow on living men and on animals; and he alludes to that important work, "*Des Végétaux qui croissent sur les animaux vivants, par le Docteur Ch. Robin.*" 8vo. avec planche. Paris, 1847. See last and enlarged edition, 1853.

This plant, figured by M. Lebert (*Physiol. Pathol.* ii. 477, 1845), forms the filaments or tubes in Favus or scald-head. *Porriigo scutulata*, M. Charles Robin says, depends upon the growth of the same genus, which he names *A. Lebertii*. *Plica Polonica* is also made up of two distinct vegetable growths, not yet named: the one attacking the hair itself, the other the substance which agglutinates them. M. Gruby, who has made some curious researches upon the subject, has described under the name *Microsporum Audouinii*, the mushroom which causes *Porriigo decalcans*, and which has been called for this reason *Phyto-alopecia*. According to the same author, *Mentagra* is equally owing to a fungus growth. So also *Muscardine*, which produces such ravages in the silk-worm establishments, is caused by the growth of *Botrytis Bassiana*. Some of the diseases of mucous membranes, muguet for instance, are of parasitic origin; some are fungous, others confervoid. Richard, *Elém. d'Hist. Nat. Méd.* ii. 18; see also two papers of Dr. Brown, of Philadelphia, in *Charleston Med. Journal and Review*, 1851, and Jos. Leidy, M. D., in *Trans. of Smithsonian Institution*.

Including those enumerated above, ten Cryptogamia of the skin are described by Robin in his recent work: *Tricophyton sporuloides*; *Tricophyton ulcrum*, Lebert, in the crust covering an atonic ulcer of the leg. *Microsporon furfur*, found in *Pityriasis versicolor* of Willan. We will also cite from Robin, the list of Fungi growing on the mucous membranes, or in the contents of cavities lined by mucous membranes: 1. *Cryptococcus cerevisie*, Kützing (Syn. *Tarula cerevisia*, the yeast plant) in the bladder, stomach, intestines, &c. 2. *Microspadia ventriculi* Robin (Syn. *Sarcina*), in the stomach, intestines, &c. 3. *Leptothrix buccalis*, Robin (Syn. Alga of the mouth). 4. *Oscillaria* (?) of the Intestines, Farre. 5. *Leptomitius urophilus*, Montaigne (an alga described as forming in the urine. It has as yet been scarcely studied). 6. *Leptomitius* (?) *Hannoverii*, Robin (alga found by Hannover in the pharynx and œsophagus). 7. *Leptomitius* (?) of the uterus. *Leptomitius* of the uterine mucus. 9. *Leptomitius* of the eye. 10. *Oidium albicans* Robin (Syn. Cryptogam of diphtheritis and aptha), Aphophyte (of Gruby). 11. Fungus of the Lung, Bennett. 12. Fungus in the discharge of glanders.—Braith. Retrosp. from B. & F. Med. Chirurg. Review

INDEX

OF THE

BOTANICAL NAMES OF GENERA AND SPECIES.

-
- | | |
|----------------------------------|---------------------------|
| Acinula clavus, 110 | Agaricus citrinus, 68, 70 |
| Agarum esculentum, 33 | “ clavus, 82 |
| Agaricus abellus, 83 | “ clypeolarius, 63 |
| “ aeris, 78, 79, 80 | “ conicus, 65 |
| “ albo-brunneus, 71 | “ colubrinus, 63 |
| “ alborufus, 65, 84 | “ cinereus, 62 |
| “ albellus, 65, 83 | “ deliciosus, 78 |
| “ aliiatus, 82 | “ elburneus, 64 |
| “ alliaceus, 82 | “ erubescens, 64 |
| “ alutaceus, 72, 88 | “ enceus, 66 |
| “ amarus, 80, 82 | “ eryngii, 66 |
| “ amethysteus, 68 | “ emeticus, 73 |
| “ annularius, 64 | “ esculentus, 82, 85 |
| “ anisatus, 86 | “ edulis, 86 |
| “ Annulatus, 63 | “ fulvo-albicans, 62 |
| “ aquifolii, 85 | “ flexuosus, 88 |
| “ arvensis, 86 | “ foetens, 76 |
| “ aromaticus, 71 | “ fureatus, 76 |
| “ asper, 62, 63 | “ fulvosus, 81 |
| “ atramentarius, 87 | “ ficoides, 81 |
| “ attenuatus, 65 | “ fulvus, 81 |
| “ auratus, 72, 82 | “ frumentaceus, 82 |
| “ auriculatus, 66 | “ floccosus, 83 |
| “ ausantiacus, 67 | “ fabaceus, 87 |
| “ bulbosus vernus, 68 | “ fusco pallidus, 64 |
| “ bombycinus, 84 | “ globocephalus, 76 |
| “ bifidus, 76 | “ glandulosus, 84 |
| “ bulbosus, 52, 53, 55, 72 | “ gilvus, 86 |
| “ candicinus, 66 | “ Georgii, 85 |
| “ castaneus, 71 | “ griseus, 85 |
| “ candidus, 70 | “ glutinosus, 71 |
| “ campestris, 48, 64, 86, 90, 98 | “ hydrogrammus, 83 |
| “ campanulatus, 50, 72, 88 | “ hariolarum, 88 |
| “ cerasinus, 64 | “ haematocheilus, 71 |
| “ cantharelloides, 91 | “ hercynicus, 72 |
| “ callosus, 88 | “ infundibuliformis, 86 |
| “ carneus, 68 | “ integer, 74 |
| “ cuneifolius, 86 | “ insidiosus, 88 |
| “ caesareus, 56, 67 | “ intybaceus, 95 |
| “ cortinellus, 84 | “ illicinus, 66 |

- Agaricus incrassatus, 76
 " lacteus, 64
 " laevis, 68
 " luridus, 87
 " lactifluus dulcis, 79
 " lactifluus, 78
 " lactifluus aureus, 79
 " lactifluus ruber, 79
 " lateritius, 82, 88
 " melleus, 64
 " muscarius, 55, 57, 61, 88
 " miniatus, 84
 " murinus, 65
 " maleficus, 70
 " nitens, 64
 " nivens, 66
 " necator, 76, 77
 " narcoticus, 79
 " oreellus, 66
 " oreades, 81, 90
 " oreades, 81
 " olearius, 66
 " ostreatus, 84
 " odorus, 86
 " ovinus, 86
 " ovoides, 56
 " personatus, 72
 " pectinaceus, 72, 73
 " phalloides, 55
 " pulvinatus, 56
 " plumbeus, 56
 " patherinus, 50, 61
 " pustulatus, 62
 " procerus, 48, 50, 58, 63
 " polymices, 64
 " piperatus, 76, 80
 " papilionaceus, 79
 " pratensis, 81
 " Pyrogalus, 80
 " pseudo-monoceron, 81
 " perpendicularis, 82
 " purus, 67
 " prunulus, 83
 " palomet, 65, 66
 " pallidus, 85
 " porreus, 82
 " quercinus, 91
 " quietus, 80
 " rutilans, 71
 " rosens, 67
 " russula, 65
 " ruber, 74, 78
 " rubescens, 62, 79
 " rhodopolius, 83
 " rimosus, 83
 " striatus, 71
 " sanguineus, 72, 74
 " stipitis, 64
 " squalidus, 76
 " subdulcis, 79
 " scorodonius, 82
 " stypticus, 83
 " semiopectatus, 83
 Agaricus squarrosus, 83
 " squamosus, 83
 " sambucinus, 84
 " semiglobatus, 74
 " sulphureus, 85
 " sapidus, 85
 " splendens, 86
 " sagarum, 88
 " solitarius, 62
 " tortilis, 81
 " tenacellus, 83
 " tessellatus, 84
 " tigrinus, 86
 " theiogallus, 57
 " ulnarius, 84
 " urens, 79, 88
 " volvaceus, 77, 85
 " vernus, 68
 " volvaceus minor, 70
 " virosus, 71
 " vernalis, 55
 " verucosus, 62
 " zonarius, 88
 Alecatoria jubata, 26
 " usneoides, 27
 Amanita virgata, 85
 " myoides, 62
 " muscaria, 50, 57, 59, 61, 62, 88
 " aurantiaca, 67
 " bulbosa-alba, 68
 " candida, 70
 " pusilla, 70
 " citrina, 70, 89
 Aphille, 15
 Anthoceras, 13
 Boletus arboreus, 91
 " suaveolens, 91, 92
 " versicolor, 92
 " sulphureus, 94
 " lucidus, 94
 " variegatus, 94
 " mesentericus, 95
 " fomentarius, 95
 " ungulatus, 95, 96
 " applanatus, 95
 " ignarius, 95, 96
 " tuberaster, 97
 " albidus, 97
 " subsquamosus, 97
 " umbellatus, 98
 " ramosissimus, 95, 98
 " granulatus, 98
 " lactifluus, 98
 " circinans, 98
 " piperatus, 98
 " ferrugineus, 98
 " subtomentosus, 98
 " cupreus and crassipes, 98
 " communis, 98
 " chrysenteron, 98
 " albus, 99
 " felleus, 99

- Boletus pachypus*, 99
 " *cyanescens*, 99
 " *constrictus*, 99
 " *luridus*, 99
 " *rubeolarius*, 99
 " *bovinus*, 99
 " *perniciosus*, 99, 100
 " *marmoreus*, 99
 " *annularius*, 101
 " *annulatus*, 101
 " *luteus*, 101
 " *cinereus*, 101
 " *floccopus*, 101
 " *aereus*, 101
 " *castaneus*, 102
 " *edulis*, 102
 " *bulbosus*, 102
 " *solidus*, 102
 " *bovinus*, 102
 " *squamosus*, 102
 " *Satanus*, 103
 " *larycinus*, 103
 " *scaber*, 104
 " *bovinus*, 104
 " *procerus*, 104
 " *aurantiacus*, 104
 " *scopetino*, 104
 " *hirsutus*, 105
 " *hepaticus*, 105
Borreria furfuracea, 25
 " *flavicans*, 25
Bovista gigantea, 114
Bulgaria inquinans, 108
Bryum affine, 12
Bryozoaires, 14

Caeoma sitophilum, 118
 " *rubigo*, 119
Clavaria caput Medusæ, 107
 " *cinerea*, 107
 " *amethystina*, 107
 " *fastigiata*, 107
 " *pratensis*, 107
 " *botritis*, 107
 " *plebeia*, 107
 " *crispa*, 107
 " *pistillaris*, 108
 " *Hereulanea*, 108
 " *coralloides*, 108
 " *flava*, 108
Calothrix luteola, 43
 " *nivea*, 43
Clathrus cancellatus, 116
 " *volvaceus*, 116
 " *ruber*, 116
Cantharellus cibarius, 90
 " *aurantiacus*, 91

Cellulares, 7
Cenomyce rangeferina, 27
 " *pyxidata*, 27
 " *coccifera*, 28
 " *uncialis*, 27
Cetraria Islandica, 22
 " *Glaucæ*, 23

Cetraria nivalis, 24
Chara tribe, 14
 " *vulgaris*, 15
Chroölepus Arnottii, 44
Characeæ, 14
Chondrus crispus, 29, 38
 " *membranifolius*, 39
 " *polymorphus*, 38
 " *pinnatifida*, 39
Chondria pinnatifida, 36
Chorda filum, 34
Claydonia pyxidata, 27
 " *rangeferina*, 27
 " *uncialis*, 27
 " *coccifera*, 28
 " *cornucopioides*, 28
Cinnabar vegetable, 17
Collema nigrum, 20
 " *fragrans*, 20
Cochineal, 17
Croallina officinalis, 43
Cocolla Bianca, 56
Cord moss, 11
Conferva villosa, 35
 " *coccinea*, 41
 " *bulbosa*, 42
 " *corallina*, 42
 " *rivularis*, 42
 " *setacea*, 42
 " *ægagropila*, 42

Dasya coccinea, 41
Dacrimices moriformis, 109
Delesseria palmata, 36
Dicranum bryoides, 11
Dedalea quercina, 91
 " *suaveolens*, 91, 94
Durvillea utilis, 35

Elaphomices granulatus, 116
Enteromorpha intestinalis, 41
Endocarpus miniatus, 16
Equisetaceæ, 7
Equisetum hyemale, 7, 8
 " *limosum*, 8
 " *variegatum*, 9
Evernia prunastri, 25, 26
 " *vulpina*, 25
 " *lobata*, 26

Feather moss, 12
Flat-leaved jungermannia, 12
Filicoideæ, 7
Fissidens bryoides, 11
Fontinalis antipyrretica, 12
Fucus crispus, 38
 " *natus*, 29
 " *serratus*, 29
 " *vesiculosus*, 30
 " *clathrus*, 32
 " *coralloides*, 32
 " *dulcis*, 33
 " *amylaceus*, 33

- Fucus saccharinus*, 34
 " *bulbosus*, 35
 " *palmatus*, 36
 " *ciliatus*, 36
 " *Phocanium*, 36
 " *edulis*, 40
 " *nodosus*, 32
 " *canaliculatus*, 32
 " *amansii*, 32
 " *bracteatus*, 32
 " *tenax*, 33, 38
 " *tendo*, 33
 " *esulentum*, 33
 " *digitatus*, 34
 " *polyschides*, 35
 " *Helminthocorton*, 37
Funnaria hygrometrica, 11
Fungus phalloides, 55
 " *eryngii*, 66
 " *orbicularis aureus*, 67
 " *alpinus*, 82
 " *esulentus*, 85
 " *multiplex*, 87
 " *angulosus*, 90
 " *cavernosus*, 108
Fungi Caroliniani Exsiccati, 5
Gelidium, 39
 " *pinnatifida*, 36
Gigartina Helminthocorton, 37
 " *compressa*, 38
Gracillana Helminthocorton, 37
Gracillaria compressa, 38
 " *tenax*, 38
Griffithsia setacea, 41
 " *corallina*, 42
Gyrophora proboscidea and vellea, 21
 " *cylindrica*, 21
 Harvey, W. H. Marine Algae, 5
 Hair moss, 11
Halymenia palmata, 36
 Helv. Spicil. 27
Helvella hybrida, 108
 " *esculenta*, 109
 " *Acaulis*, 109
 " *crispa*, 109
 " *mitra*, 109
 " *esculenta*, 109
 " *elastica*, 109
 " *albida*, 109
 " *fuliginosa*, 109
 Hepaticae, 12
Himantalia lorea, 33
Hutchinsia atrorubescens, 41
Hemitococcus Grevillii, 45
 Horse-tails, 7
Hydrocharis, 15
Hypodris hepaticus, 105
Hydrium imbricatum, 105
 " *squamosum*, 105
 " *squarrosum*, 105
 " *violaceum*, 105
 " *album*, 105
Hydrium aurisculpium, 106
 " *repandum*, 106
 " *flavidum*, 106
 " *erinaceus*, 106
 " *cyathiforme*, 106
 " *concrescens*, 106
 " *coralloides*, 106
 " *ramosum*, 106
 " *caput Medusæ*, 107
Hygrometric cord moss, 11
Hypophyllum sanguineum, 50, 89
 " *niveum*, 90
 " *maculatum*, 90
 " *tricuspidatum*, 90
 " *albo-citrinum*, 90
 " *crux melitensis*, 90
 " *pubibundum*, 90
 " *pellitum*, 90
Hypnum bryoides, 11
 " *purum*, 12
Hericium erinaceum, 106
 " *commune*, 106
 " *coralloides*, 106
 " *caput Medusæ*, 107
Isidium Westringii, 27
Iridaea edulis, 33, 38, 40
Jungermannia planifolia, 12
 " *nemorosa*, 12
Lactarius theiogallus, 57
Lecanora tartarea, 18
 " *atra*, 19
 " *vinetoria*, 17
 " *Hæmatommia*, 19
 " *parella*, 18
 Leafless plants, 15
Lepraria chlorina, 16
 Liverworts, 12
 Lichens, 15, 16
 Lichen *fagineus*, 16
 " *lacteus*, 17
 " *esulentus*, 17
 " *coprate*, 17
 " *coccineus*, 19
 " *physodes*, 19
 " *Fahlunensis*, 19
 " *parietina*, 19
 " *saxatilis*, 19
 " *omphalodes*, 20
 " *fuliginosus*, 20
 " *pulmonarius*, 20
 " *proboscideus*, 21
 " *fragrans*, 20
 " *apthosus*, 21
 " *Upsaliensis*, 18
 " *parellus*, 18
 " *tartareus*, 18
 " *frigidus*, 18
 " *pustulata*, 22
 " *Islandicus*, 22
 " *Glaucæ*, 23
 " *rocella*, 24

- Liehen *nivalis*, 24
 " *prunastri*, 25
 " *furfuraceus*, 25
 " *calycaris*, 26
 " *fraxineus*, 26
 " *jubatus*, 26
 " *rangeferinus*, 27
 Laminaria *buccinalis*, 34
 " *saccharina*, 34
 " *digitata*, 34
 " *bulbosa*, 35
 " *potatorum*, 35
 Laurencia *pinnatifida*, 36
 Lentinus *tigrinus*, 86
 Leotia *clavus*, 109
 Lycoperdon *tuber*, 113
 " *giganteum*, 114
 " *Proteus*, 114
 " *pusillum*, 114
 " *caelatum*, 115
 " *echinoformis*, 116
 " *bovista*, 115
 " *gemmatum*, 115
 " *corium*, 115
 " *solidum*, 115
 " *carcinomale*, 115
 " *verrucosum*, 115
 Lycopodiaceæ, 9
 Lycopodium *selago*, 9
 " *clavatum*, 9
 " *phlegmaria*, 10
 " *cernuum*, 10
 " *lepidophyllum*, 10
 " *complanatum*, 10
 Marchantia *hemispherica*, 13
 " *polymorpha*, 13
 Manna vegetable, 17
 Merulius *cantharellus*, 90
 " *aurantiacus*, 91
 " *lachrimus*, 91
 " *destruens*, 91
 " *vastator*, 91
 " *aureus*, 91
 Mirbel on nature of the sporange, 13
 Moss-like plants, 11
 Morchella *deliciosa*, 108
 " *semilebra*, 108
 " *esculenta*, 109
 Monilla *glauca*, 117
 Mnium *cuspidatum*, 12
 Mucedo, 119
 Mucor *glaucaus*, 117
 Mycodema *cervisie*, 117
 Muscoideæ, 11
 Musci, 11
 Nostoch commune, 45
 Orseille de Terre, 16
 Oscillatoria, 43
 Oidium *erysiphoides*, 117
 Parelle, 17, 18
 Parmelia *sermposa*, 17
 cinerea, 17
 " *coperata*, 17
 " *atra*, 19
 " *tartarea*, 18
 " *pallescens*, 18
 " *physodes*, 19
 " *Fahlunensis*, 19
 " *encausta*, 19
 " *parietina*, 19
 " *saxatilis*, 19
 " *omphalodes*, 20
 " *rotundata*, 20
 Palmella *nivalis*, 45
 " *montana*, 45
 " *alpicola*, 45
 Payer, Botanique Cryptogamique, 13
 Penicillium *glaucaum et roseum*, 117
 Peziza *nigra*, 108
 " *auricula Judeæ*, 113
 Pelidea *apthosa*, 21
 " *canina*, 21
 Phallo-boletus *esculentus*, 108
 Phallus *esculentus*, 108
 " *esculentus*, 109
 " *impudicus*, 112
 " *fetidus*, 112
 " *caninus*, 112
 " *inodorus*, 112, 113
 Plocamium *coccineum*, 36
 Phyllophora *rubens*, 39
 Polysiphonia *atrorubescens*, 41
 Polytrichum commune,* 11
 Porphyra *laciniata*, 39
 " *vulgaris*, 39
 Podisma *macropus*, 117
 Pulmonaria, 10
 Polyporus *versicolor*, 92
 " *officinalis*, 92, 103
 " *suaveolens*, 92
 " *salicinus*, 92
 " *squamosus*, 94
 " *sulphureus*, 94
 " *lucidus*, 94
 " *destructor*, 95
 " *frondosus*, 95
 " *giganteus*, 95
 " *betulinus*, 95
 " *tuber*, 95
 " *fomentarius*, 95
 " *ignarius*, 96
 " *tuberaster*, 97
 " *esculentus*, 97
 " *ovinus*, 97
 " *carinthiacus*, 97
 " *umbellatus*, 98
 Protococcus *nivalis*, 45
 Puccinia *graminis*, 118
 " *arundinacea*, 118
 Ravenel, Fungi Caroliniani Exsiccati, 5
 Ramalina *scopulorum*, 26
 " *fraxinea*, 26
 Rebouillia, 13
 Reticularia *segetum*, 118

- Reticularia maxima*, 116
Rhizomorpha, 119
Rhodymenia palmata, 36
 " *ciliata*, 36
Rivularia angulosa, 45
Russula furcata, 76
 Roques' Work, 7
Rocella tinctoria, 24
 " *Phycopsis*, 25
 " *fuciformis*, 25

Sargassum vulgare, 29
Secale cornutum, 110
Selago, 13
Scapania nemorosa, 12
Scytosiphon, 35
Scyphophorus pyxidatus, 27
 " *cocciferus*, 28
Scleroderma verrucosum, 115
Schizonema Dillwynii, 46
Spharia entomorrhiza, 116
Sporochneus villosus, 35
Sphaerococcus Helminthocorton, 37
 " *Membranifolius*, 39
 " *rubens*, 39
Sporotrichium macrosporum, 117
Steecherino, o *dentino bianco*, 105
Sulphur lichen, 17

Torula botryoides, 117
 " *cervisie*, 117
Tuber cibarium, 113
 " *bumale*, 113
 " *nivum*, 114
 " *moschatum*, 114
 " *griseum*, 114
Truffles, 113

Tremella nostoch, 45
 " *moriformis*, 109
 " *auricula Judææ*, 113

Uva umbilicalis, 39
 " *edulis*, 40
 " *lactuca*, 40
 " *montana*, 45
 " *latissima*, 41
 " *lactuca*, *va. latissima*, 41
 " *pruniformis*, 45
Umbilicaria pustulata, 22
 " *proboscidea*, 24
 " *crinita*, 24
 " *cylindrica*, 21
 " *Muhlenbergii*, 22
Usnea plicata, 26
Uredo suaveolens, 119
 " *nivalis*, 15
 " *frumenti*, 118
 " *carbo*, 118
 " *segetum*, 118
 " *caries*, 118
 " *sitophila*, 118
 " *rubigo*, 119
Ustilago segetum, 118
Urecolaria, 17

Valisneria spiralis, 15
Variolaria faginea, 16
 " *communis*, 16
 " *oreina*, 16
 " *lactea*, 16
Vibriscea truncorum, 109

Zoothiques, 13

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